

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:04:51 ; Search time 61.66 Seconds

(without alignments)
246,895, Million cell updates/sec

Title: US-09-642-277A-3

Perfect score: 467
Sequence: 1 FLRIHPDGRDGVREKSDPR.....ESNNNTYNSRKYTSWVAL 88

Scoring table: BLOSUM62
Gapop 10.0 , Capext 0.5

Searched: 562222 seqs, 172994929 residues

Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

1: SP_ARCHAEA:*
2: SP_BACTERIA:*
3: SP_FUNGI:*
4: SP_HUMAN:*
5: SP_INVERTEBRATE:*
6: SP_MAMMAL:*
7: SP_MHC:*
8: SP_ORGANELLE:*
9: SP_PHAGE:*
10: SP_PLANT:*
11: SP RODENT:*
12: SP_VIRUS:*
13: SP_VERTEBRATE:*
14: SP_UNCLASSIFIED:*
15: SP_IVIRUS:*
16: SP_BACTERIAP:*
17: SP_ARCHAEP:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query	Match Length	DB ID	Description
1	467	100.0	196	4	P78443
2	462	98.9	130	6	077767
3	457	97.9	170	11	060487
4	453	97.0	108	6	09N157
5	452	96.8	111	6	09N189
6	442.5	94.8	153	11	0925A3
7	400	85.7	101	13	P79706
8	400	85.7	155	13	090Y92
9	391	83.7	125	13	098T08
10	346	74.5	109	11	0925A1
11	344	73.7	112	11	0925A2
12	341	73.0	76	6	09NOV2
13	334.5	71.6	146	13	007659
14	238	51.0	106	6	09N158
15	179.5	38.4	196	13	09YH31
16	178	38.1	134	13	090X03

17	177.5	38.0	124	13	090X05	090X05 ambystoma m
18	174.5	37.4	111	13	090X01	090X01 ambystoma m
19	172	36.8	208	6	095K97	095K97 macaca fasc
20	167.5	35.9	206	13	098C08	098C08 oncorhynch
21	162.5	34.8	213	6	09N189	09N189 ovis aries
22	162	34.7	208	4	096P59	096P59 homo sapien
23	162	34.7	212	13	042407	042407 gallus gall
24	160	34.3	186	6	095L47	095L47 mustela vis
25	159	34.0	112	13	090XP9	090XP9 ambystoma m
26	159	34.0	185	11	098R55	098R55 rattus norv
27	157	33.6	111	13	090Y71	090Y71 xenopus lae
28	154	33.0	208	13	09PYV1	09PYV1 xenopus lae
29	153.5	32.9	191	13	09DFC9	09DFC9 brachydanio
30	152	32.5	227	13	09DD80	09DD80 gallus gall
31	151	32.3	207	11	09ES18	09ES18 mus musculu
32	151	32.3	207	11	09ER05	09ER05 mus musculu
33	151	32.3	208	6	095L12	095L12 sus scrofa
34	151	32.3	212	11	09ESL9	09ESL9 sus scrofa
35	147	31.5	127	4	099517	099517 homo sapien
36	147	31.5	212	11	09EST9	09EST9 rattus norv
37	146	31.3	181	11	0924B4	0924B4 rattus norv
38	146	31.3	181	13	091A17	091A17 gallus gall
39	146	31.3	243	13	09W6A1	09W6A1 gallus gall
40	146	31.3	302	11	09CSX5	09CSX5 mus musculu
41	137	29.3	74	6	077561	077561 oryctolagus
42	135	28.9	199	13	091A13	091A13 gallus gall
43	135	28.9	245	13	09W6A2	09W6A2 gallus gall
44	133	28.5	237	13	091A16	091A16 gallus gall
45	133	28.5	252	11	089096	089096 rattus norv

ALIGNMENTS

RESULT 1
ID P78443 PRELIMINARY; PRT: 196 AA.
AC P78443:
DT 01-MAY-1997 (TREMBLrel. 03, Created)
DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, Last annotation update)
DE 21 KDA BASIC FIBROBLAST GROWTH FACTOR (BFGF).
GN BFGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominiidae; Homo.
OX NCBI_TaxID:9606;
RN (1)
RP SEQUENCE FROM N.A.
RA MEDLINE-69184522; PubMed-2538817;
RA Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
Liauzun P., Chalton P., Tauber J.P., Amelric F., Smith J.A., Caput D.;
RT "High molecular mass forms of basic fibroblast growth factor are
initiated by alternative CUG codons.";
RL Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
RN [2]
RP SEQUENCE OF 81-168 FROM N.A.
RA MEDLINE-93038590; PubMed-1417798;
RA Watson R., Anthony F., Plickett M., Lambden P., Masson G.M.,
Thomas E.J.;
RT "Reverse transcription with nested polymerase chain reaction shows
expression of basic fibroblast growth factor transcripts in human
granulosa and cumulus cells from in vitro fertilisation patients.";
RL Biochem. Biophys. Res. Commun. 187:1227-1231(1992).
EMBL: J04513; AAA52532.1;
EMBL: S47380; AAA13853.1;
DR HSSP: P09038; 1BF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002346; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF_1.
DR SMART: SM00442; FGF_1.

DR PROSITE: PS00247; HBGF_FGF; 1.
SQ SEQUENCE 196 AA; 21203 MW; D6B5447137E60343 CRC64;

Query Match 100.0%; Score 467; DB 4; Length 196;
Best Local Similarity 100.0%; Pred. No. 3.9e-47;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGVGVREKSDPHIKLOLAERGVSIGVCANRYLAKMEDGRLLASCYTD 60
DB 81 FLRIHPDGVGVREKSDPHIKLOLAERGVSIGVCANRYLAKMEDGRLLASCYTD 140

OY 61 ECFEERLESNNYNTYRSKRTSYVAL 88
DB 141 ECFEERLESNNYNTYRSKRTSYVAL 168

RESULT 2

ID 077767 PRELIMINARY; PRT; 130 AA.

AC 077767;
DT 01-NOV-1998 (TREMBLrel. 08, Created)
DT 01-NOV-1998 (TREMBLrel. 17, last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (BFGF) (FGF-2) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN) (PROSTATIC GROWTH FACTOR) (FRAGMENT).

GN BFGF.
OS Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OX NCBI_Taxid=9615;
RN 11

RP SEQUENCE FROM N.A.
RC TISSUE-ADRENAL GLAND;

RA Trochta O.A., Jacobs R.M., Lamarre J.;
RL Submitted (Apr-1998) to the EMBL/Genbank/DBJ databases.
CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION, PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).

CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST ONE HEPARIN SULFATE (BY SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
DR EMBL; AF060562; AAC35912.1; -.
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IIL_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IILHBGF.
DR PRODOM; P000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.

KW Growth factor; Mitogen; Vascularization; Heparin-binding;
KW Phosphorylation; Developmental protein.
FT NON_TER 1
FT SITE 21
FT SITE 63
FT BINDING 10
FT BINDING 65
FT BINDING 103
FT MOD_RES 48
FT MOD_RES 96
FT MOD_TER 130
SQ SEQUENCE 130 AA; 14902 MW; 21900876E878FAEA CRC64;

Query Match.

98.9%; Score 462; DB 6; Length 130;

Best Local Similarity 97.7%; Pred. No. 9.1e-47;
Matches 86; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGVGVREKSDPHIKLOLAERGVSIGVCANRYLAKMEDGRLLASCYTD 60
DB 15 FLRIHPDGVGVREKSDPHIKLOLAERGVSIGVCANRYLAKMEDGRLLASCYTD 74

OY 61 ECFEERLESNNYNTYRSKRTSYVAL 88
DB 75 ECFEERLESNNYNTYRSKRTSYVAL 102

RESULT 3

ID 060487 PRELIMINARY; PRT; 170 AA.

AC 060487;
DT 01-NOV-1996 (TREMBLrel. 01, Created)
DT 01-MAY-2000 (TREMBLrel. 13, last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, last annotation update)
DE FIBROBLAST GROWTH FACTOR 2 (FGF-2) (FIBROBLAST GROWTH FACTOR, BASIC) (BFGF) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN) (PROSTATIC GROWTH FACTOR) (FRAGMENTS).

GN FGF2.
OS Cavia porcellus (Guinea pig).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Hystriognathi; Caviidae; Cavia.
OX NCBI_Taxid=10141;
RN 11

RP SEQUENCE OF 53-170 FROM N.A.
RC TISSUE-PROSTATE;

RA Ricciardelli C.;
RL Submitted (JUN-1996) to the EMBL/Genbank/DBJ databases.

RP SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING.
RX MEDLINE-89273588; PubMed-2730645;
RX Sommer A., Moscatelli D., Rifkin D.B.;
RT *An amino-terminally extended and post-translationally modified form of a 25kD basic fibroblast growth factor.*;
RL Biochem. Biophys. Res. Commun. 160:1267-1274(1989).

RP PARTIAL SEQUENCE, AND METHYLATION.
RX MEDLINE-91322114; PubMed-1713785;
RX Burgess W.H., Blizik J., Mehlman T., Quarto N., Rifkin D.B.;
RT Direct evidence for methylation of arginine residues in high molecular weight forms of basic fibroblast growth factor.*;
RL Cell Regul. 2:87-93(1991).

RP CHARACTERIZATION.
RC TISSUE-BRAIN;

RX MEDLINE-87289686; PubMed-3475702;
RX Moscatelli D., Joseph-Silverstein J., Manejlas R., Rifkin D.B.;
RT *Mr 25,000 heparin-binding protein from guinea pig brain is a high molecular weight form of basic fibroblast growth factor.*;
RL Pric. Natl. Acad. Sci. U.S.A. 84:5778-5782(1987).

CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION, PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).

CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST ONE HEPARIN SULFATE (BY SIMILARITY).

CC -1- ALTERNATIVE PRODUCTS: AT LEAST TWO ISOFORMS: 18 KDA AND 25 KDA (SHOWN HERE); MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION INITIATION SITES. BOTH FORMS ARE ACTIVE.

CC -1- PMW: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLY).
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -1- CAUTION: THIS IS A CONCEPTUAL TRANSLATION; MANY FRAMESHIFTS WERE INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF PARTIAL AMINO-ACID SEQUENCING.

DR EMBL: L75974; AA85394.1; ALT_FRAME.
DR HSSP: P09038; IBLA.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF_1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
DR Growth factor: Mitogen: Vascularization; Heparin-binding;
KW Alternative initiation; Methylation; Phosphorylation;
KM Developmental protein.
FT NON_TER. 1
FT NON_CONS 15
FT CHAIN <1 170 25 KDA BASIC FIBROBLAST GROWTH FACTOR.
FT CHAIN 22 170 18 KDA BASIC FIBROBLAST GROWTH FACTOR.
FT INT_MET 22 22 FOR 18 KDA FORM.
FT DOMAIN 11 14 POLY-ALA.
FT NON_CONS 50 51
FT SITE 61 63 CELL ATTACHMENT SITE (POTENTIAL).
FT SITE 103 105 CELL ATTACHMENT SITE (POTENTIAL).
FT BINDING 50 51 HEPARIN (BY SIMILARITY).
FT BINDING 105 105 HEPARIN (BY SIMILARITY).
FT BINDING 143 159 HEPARIN (BY SIMILARITY).
FT MOD_RES 4 4 METHYLATION (MONO- OR DI-).
FT MOD_RES 6 6 METHYLATION (MONO- OR DI-).
FT MOD_RES 8 8 METHYLATION (MONO- OR DI-).
FT MOD_RES 88 88 PHOSPHORYLATION (BY SIMILARITY).
FT MOD_RES 136 136 PHOSPHORYLATION (BY SIMILARITY).
SQ SEQUENCE 170 AA; 18354 MW; F36BDC736E5FEBB CRC64;

Query Match 97.9%; Score 457; DB 11; Length 170;
Best Local Similarity 96.6%; Pred. No. 4.9e-46;
Matches 85; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

Qy 1 FLRHPRGVGVREKSDPHIKLOLAEEGVVSIGVCANRYLAMKEDGRLASKVCYTDC 60
Db 55 FLRHPRGVGVREKSDPHIKLOLAEEGVVSIGVCANRYLAMKEDGRLASKVCYTDC 114

Qy 61 ECFEERLESNNYTYRSRKYTSYVAL 88
Db 115 ECFEERLESNNYTYRSRKYTSYVAL 142

RESULT 4
ID Q9N1S7 PRELIMINARY; PRT; 108 AA.
AC Q9N1S7;
DT 01-OCT-2000 (TREMblrel. 15, Created)
DT 01-OCT-2000 (TREMblrel. 15, Last sequence update)
DT 01-DEC-2001 (TREMblrel. 19, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
GN BGF.
OS Capreolus capreolus (Roe deer).
OC Eukaryota; Metazoa; Chordata; Cranialta; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidae;
OC Cervidae; Odocoileinae; Capreolus.
OX NCBI_TaxID=9858;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-TESTIS;
RX MEDLINE=20532861; Pubmed=11078967;
RA Wagner A., Bliotner S., Goritz F., Fickel J.;
RT "Detection of growth factors in the testis of roe deer (Capreolus capreolus).";
RL Anim. Reprod. Sci. 64:65-75(2000).
DR EMBL: AF152587; AAF73226.1;
DR HSSP: P09038; 4FGF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.

DR PRODOM: PD000831; HBGF_FGF_1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
FT NON_TER 1
FT NON_TER 108 108
SQ SEQUENCE 108 AA; 12399 MW; 6BC7B7244214567E CRC64;

Query Match 97.0%; Score 453; DB 6; Length 108;
Best Local Similarity 96.8%; Pred. No. 8.4e-46;
Matches 85; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Qy 3 RLHPGRGVGVREKSDPHIKLOLAEEGVVSIGVCANRYLAMKEDGRLASKVCYTDC 62
Db 1 RLHPGRGVGVREKSDPHIKLOLAEEGVVSIGVCANRYLAMKEDGRLASKVCYTDC 60

Qy 63 FFEERLESNNYTYRSRKYTSYVAL 88
Db 61 FFEERLESNNYTYRSRKYTSYVAL 86

RESULT 5
ID Q9BDX1 PRELIMINARY; PRT; 111 AA.
AC Q9BDX1;
DT 01-JUN-2001 (TREMblrel. 17, Created)
DT 01-JUN-2001 (TREMblrel. 17, Last sequence update)
DT 01-DEC-2001 (TREMblrel. 19, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Cranialta; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;
OC Cercopithecoidea; Macaca.
OX NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RA Sekhon H.S., Keller J.R., Spindel E.R.;
RT "Alterations in Collagen and Elastin Gene Expression in Fetal Pulmonary Vessels in Monkeys Following Prenatal Nicotine Exposure: A Possible Role of alpha1 Nicotinic Acetylcholine Receptor in Persistent Pulmonary Hypertension.";
RL Submitted (MAR-2000) to the EMBL/Genbank/DBJ databases.
DR EMBL: AF251270; AAK37962.1;
DR HSSP: P09038; 2FGF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF_1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
FT NON_TER 1
FT NON_TER 111 111
SQ SEQUENCE 111 AA; 12633 MW; EC0967A5261F5487 CRC64;

Query Match 96.8%; Score 452; DB 6; Length 111;
Best Local Similarity 100.0%; Pred. No. 1.1e-45;
Matches 85; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 4 IHPGRGVGVREKSDPHIKLOLAEEGVVSIGVCANRYLAMKEDGRLASKVCYTDC 63
Db 1 IHPGRGVGVREKSDPHIKLOLAEEGVVSIGVCANRYLAMKEDGRLASKVCYTDC 60

Qy 64 FFEERLESNNYTYRSRKYTSYVAL 88
Db 61 FFEERLESNNYTYRSRKYTSYVAL 85

RESULT 6
ID Q925A3 PRELIMINARY; PRT; 153 AA.
AC Q925A3;
AC Q925A3;

DT 01-DEC-2001 (TREMBLrel. 19, Created)
DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE FIBROBLAST GROWTH FACTOR 2.
GN FGF2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=FVB/N;
RA Ditts R.P., Giep A.E.;
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are
RT expressed in mouse embryos."
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL: AY027551; AAK52308.1;
SQ SEQUENCE 153 AA; 17024 MW; AD8163CDBFA2PAAB CRC64;

Query Match 94.8%; Score 442.5; DB 11; Length 153;
Best Local Similarity 95.5%; Pred. No. 2,2e+44;
Matches 84; Conservative 3; Mismatches 0; Indels 1; Gaps 1;

OY 1 FLRIHPDGVGVRKSPHIKLOAERGVSIGVCANRYLAMKEDGRILASKCYTD 60
DB 39 FLRIHPDGVGVRKSPHIKLOAERGVSIGVCANRYLAMKEDGRILASKCYTE 97
OY 61 ECFEERLESNNYNTYRSKRYSWYVAL 88
DB 98 ECFEERLESNNYNTYRSKRYSWYVAL 125

RESULT 7
P79706 PRELIMINARY; PRT; 101 AA.
AC P79706;
DT 01-MAY-1997 (TREMBLrel. 03, Created)
DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE BASIC FGF (FRAGMENT).
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=EMBryo;
RA Suzuki A.S., Tabata T., Sakaguchi K., Takabatake T., Takeshima K.,
RA Kaneda T.;
RT "Serial expression of the genes in a mesodermatizing ectoderms of
RT early Cynops gastrula.";
RL Submitted (NOV-1996) to the EMBL/GenBank/DBJ databases.
DR EMBL: D89443; BAA13958.1;
DR HSSP: P09038; AFGF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR ProDom: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 101
SQ SEQUENCE 101 AA; 11907 MW; 7A1A0C866C1F457A CRC64;

Query Match 85.7%; Score 400; DB 13; Length 101;
Best Local Similarity 85.2%; Pred. No. 1.4e+39;
Matches 75; Conservative 7; Mismatches 6; Indels 0; Gaps 0;
OY 1 FLRIHPDGVGVRKSPHIKLOAERGVSIGVCANRYLAMKEDGRILASKCYTD 60
DB 11 FLRIHPDGVGVRKSPHIKLOAERGVSIGVCANRYLAMKEDGRILASKCYTD 60

DB 12 FLRIHPDGVGVRKSPHIKLOAERGVSIGVCANRYLAMKEDGRILASKCYTD 71
OY 61 ECFEERLESNNYNTYRSKRYSWYVAL 88
DB 72 ECFEERLESNNYNTYRSKRYSWYVAL 99

RESULT 8
Q90Y92 PRELIMINARY; PRT; 155 AA.
AC Q90Y92;
DT 01-DEC-2001 (TREMBLrel. 19, Created)
DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE FIBROBLAST GROWTH FACTOR-2.
GN FGF-2.
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RA Susaki K., Nakamura K., Chiba C., Saito T.;
RT "Expression of FGF2 during newt retinal development and
RT regeneration."
RL Submitted (JUL-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL: AB064664; BAB63249.1;
SQ SEQUENCE 155 AA; 17278 MW; 2B583058538AB8D9 CRC64;

Query Match 85.7%; Score 400; DB 13; Length 155;
Best Local Similarity 85.2%; Pred. No. 2.3e+39;
Matches 75; Conservative 7; Mismatches 6; Indels 0; Gaps 0;

OY 1 FLRIHPDGVGVRKSPHIKLOAERGVSIGVCANRYLAMKEDGRILASKCYTD 60
DB 40 FLRIHPDGVGVRKSPHIKLOAERGVSIGVCANRYLAMKEDGRILASKCYTD 99
OY 61 ECFEERLESNNYNTYRSKRYSWYVAL 88
DB 100 ECFEERLESNNYNTYRSKRYSWYVAL 127

RESULT 9
Q98TD8 PRELIMINARY; PRT; 125 AA.
AC Q98TD8;
DT 01-JUN-2001 (TREMBLrel. 17, Created)
DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE FIBROBLAST GROWTH FACTOR-2 (FRAGMENT).
GN FGF-2.
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RA Mizuno N., Hayashi T., Kondoh H., Okamoto M.;
RT "Cynops fibroblast growth factor-2.";
RL Submitted (OCT-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL: AB049625; BAB40835.1;
DR HSSP: P09038; IBFF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR ProDom: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 125
SQ SEQUENCE 125 AA; 14244 MW; 5C27F41DC6E60C13 CRC64;

Query Match
Best Local Similarity 83.7%; Score 391; DB 13; Length 125;
Matches 74; Conservative 7; Mismatches 7; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDCVRKSPHRIKLOLAERGVSIGVCANRYLAMKEDGRLLASKCYTD 60
DB 10 FLRIHSDKVDCAKRSKSYIKLOLAERGVSIGVCANRYLAMKEDGRLLASKCYTD 69
QY 61 ECFEERLESNNYNTYRSKRYTSMYVAL 88
DB 70 ECFEERLESNNYNTYRSKRYTSMYVAL 97

RESULT 10
Q925A1 PRELIMINARY; PRT; 109 AA.

AC Q925A1;
DT 01-DEC-2001 (TREMblrel. 19, Created)
DT 01-DEC-2001 (TREMblrel. 19, Last sequence update)
DE FIBROBLAST GROWTH FACTOR 2.
GN FGF2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=FVB/N;
RA Dirks R.P.; Griep A.E.;
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are
RT expressed in mouse embryos."
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY027558; AAK52310.1;
SQ SEQUENCE 109 AA; 12386 MW; 61074ADE3303C860 CRC64;

Query Match
Best Local Similarity 74.5%; Score 348; DB 11; Length 109;
Matches 66; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 21 IKILOAERGVSIGVCANRYLAMKEDGRLLASKCYTDECFEERLESNNYNTYRSK 80
DB 14 IKILOAERGVSIGVCANRYLAMKEDGRLLASKCYTDECFEERLESNNYNTYRSK 73
QY 81 YTSWYVAL 88
DB 74 YTSWYVAL 81

RESULT 11
Q925A2 PRELIMINARY; PRT; 112 AA.

AC Q925A2;
DT 01-DEC-2001 (TREMblrel. 19, Created)
DT 01-DEC-2001 (TREMblrel. 19, Last sequence update)
DE FIBROBLAST GROWTH FACTOR 2.
GN FGF2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=FVB/N;
RA Dirks R.P.; Griep A.E.;
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are
RT expressed in mouse embryos."
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY027557; AAK52309.1;
SQ SEQUENCE 112 AA; 12725 MW; B00557ABE0257CCB CRC64;

Query Match
Best Local Similarity 73.7%; Score 344; DB 11; Length 112;
Matches 65; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 22 KLOLAERGVSIGVCANRYLAMKEDGRLLASKCYTDECFEERLESNNYNTYRSKRY 81
DB 18 KLOLAERGVSIGVCANRYLAMKEDGRLLASKCYTDECFEERLESNNYNTYRSKRY 77
QY 82 TSMYVAL 88
DB 78 TSMYVAL 84

RESULT 12
Q9NOV2 PRELIMINARY; PRT; 76 AA.

AC Q9NOV2;
DT 01-OCT-2000 (TREMblrel. 15, Created)
DT 01-OCT-2000 (TREMblrel. 15, Last sequence update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
GN FGF-2.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=FETAL PLACENTAL ARTERY;
RA Zheng J.; Tsol S.C.; Magness R.R.;
RT "Growth factor expression in ovine fetal placental artery endothelial
RT cells."
RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF250027; AAF65566.1;
DR HSSP; P09038; 4RGF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF_1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF_1.
DR SMART; SM00442; FGF_1.
DR PROSITE; PS00247; HBGF_FGF_1.
FT NON_TER 1
FT NON_TER 76
SQ SEQUENCE 76 AA; 8796 MW; 7D984E2E9745B20 CRC64;

Query Match
Best Local Similarity 73.0%; Score 341; DB 6; Length 76;
Matches 66; Conservative 1; Mismatches 0; Indels 8; Gaps 1;

QY 18 DPHIKILOAERGVSIGVCANRYLAMKEDGRLLASKCYTDECFEERLESNNYNTYR 77
DB 1 DPHIKILOAERGVSIGVCANRYLAMKEDGRLLASKCYTDECFEERLESNNYNTYR 60
QY 78 SRKY-----TSW 84
DB 61 SRKYSQLVCGTETNM 75

RESULT 13
Q07659 PRELIMINARY; PRT; 146 AA.

AC Q07659;
DT 01-NOV-1996 (TREMblrel. 01, Created)
DT 01-NOV-1996 (TREMblrel. 01, Last sequence update)
DT 01-JUN-2001 (TREMblrel. 17, Last annotation update)
DE FIBROBLAST GROWTH FACTOR.
GN BFGF.
OS Gallus gallus (Chicken).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID=9031;
RN 11
RX MEDLINE=93246053; PubMed=7683281;
RA Borja A.Z., Zeller R., Meijers C.;
RT *Expression of alternatively spliced bFGF first coding exons and
RT antisense mRNAs during chicken embryogenesis.*;
RL Dev. Biol. 157:110-118(1993).
RN 12
RX MEDLINE=90382254; PubMed=2401202;
RA Mitrani E., Gruenbaum Y., Shohat H., Ziv T.;
RT *Fibroblast growth factor during mesoderm induction in the early chick
RT embryo.*;
RL Development 109:387-393(1990).
DR EMBL; M5706; AAA48616.1; -
DR EMBL; X56804; CAA40139.1; -
DR HSSP; P09038; 2BPH.
DR InterPro: IPR002209; HBG_FGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; ILI_HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
SQ SEQUENCE 146 AA; 16182 MW; A7CB97BCB456E247 CRC64;

Query Match 71.6%; Score 334.5; DB 13; Length 146;
Best Local Similarity 75.6%; Pred. No. 1.1e-31;
Matches 65; Conservative 6; Mismatches 8; Indels 7; Gaps 1;

QY 3 RHHPDGVGVREKSDPHIKIQLOAEERGVSIGVCANRYLAMKEDGRLLASKCVTDEC 62
ID 09N1S8 PRELIMINARY; PRT; 106 AA.
AC 09N1S8;
DT 01-OCT-2000 (TREMBLrel. 15, Created)
DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
GN AFGF.
OS Capreolus capreolus (Roe deer).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervidae;
OC Cervidae; Odocoilinae; Capreolus.
OX NCBI_TaxID=9858;
RN 11
RX MEDLINE=20532861; PubMed=11078967;
RA Wagener A., Bliotner S., Goritz F., Fickel J.;
RT *Detection of growth factors in the testis of roe deer (Capreolus
RT capreolus).*;
RL Anim. Reprod. Sci. 64:65-75(2000).
DR EMBL; AF152586; AAF73225.1; -
DR HSSP; P05230; ZAFG.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; ILI_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; ILI_HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.

DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1 1
FT NON_TER 106 106
SQ SEQUENCE 106 AA; 11931 MW; 2EEC9C1D749A5023 CRC64;

Query Match 51.0%; Score 238; DB 6; Length 106;
Best Local Similarity 52.8%; Pred. No. 1.8e-20;
Matches 47; Conservative 13; Mismatches 28; Indels 2; Gaps 1;

QY 1 FLRIHPDGVGVREKSDPHIKIQLOAEERGVSIGVCANRYLAMKEDGRLLASKCVTD 60
ID 09YH31
AC 09YH31;
DT 01-MAY-1999 (TREMBLrel. 10, Created)
DT 01-MAY-1999 (TREMBLrel. 10, Last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, Last annotation update)
DE POTATIVE FIBROBLAST GROWTH FACTOR-4.
OS Notophthalmus viridescens (Eastern newt) (Triturus viridescens).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandridae; Salamandridae;
OX NCBI_TaxID=8316;
RN 11
RX SEQUENCE FROM N.A.
RA Wei Y.;
RT *Putative Newt Fibroblast Growth Factor-4.*;
RL Submitted (OCT-1996) to the EMBL/Genbank/DBJ databases.
DR EMBL; U76996; AAC98812.1; -
DR HSSP; P09038; 1BPF.
DR InterPro: IPR001064; Crystallin.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; ILI_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; ILI_HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00225; CRYSTALLIN_BETAGAMMA; UNKNOWN_1.
DR PROSITE; PS00247; HBGF_FGF; 1.
SQ SEQUENCE 196 AA; 22033 MW; AC4688CD989C6E2AF CRC64;

Query Match 38.4%; Score 179.5; DB 13; Length 196;
Best Local Similarity 44.8%; Pred. No. 2.9e-13;
Matches 39; Conservative 14; Mismatches 33; Indels 1; Gaps 1;

QY 2 LRHPDGVGVREKSDPHIKIQLOAEERGVSIGVCANRYLAMKEDGRLLASKCVTDE 61
ID 09YH31
AC 09YH31;
DT 01-MAY-1999 (TREMBLrel. 10, Created)
DT 01-MAY-1999 (TREMBLrel. 10, Last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, Last annotation update)
DE POTATIVE FIBROBLAST GROWTH FACTOR-4.
OS Notophthalmus viridescens (Eastern newt) (Triturus viridescens).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandridae; Salamandridae;
OX NCBI_TaxID=8316;
RN 11
RX SEQUENCE FROM N.A.
RA Wei Y.;
RT *Putative Newt Fibroblast Growth Factor-4.*;
RL Submitted (OCT-1996) to the EMBL/Genbank/DBJ databases.
DR EMBL; U76996; AAC98812.1; -
DR HSSP; P09038; 1BPF.
DR InterPro: IPR001064; Crystallin.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; ILI_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; ILI_HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00225; CRYSTALLIN_BETAGAMMA; UNKNOWN_1.
DR PROSITE; PS00247; HBGF_FGF; 1.
SQ SEQUENCE 196 AA; 22033 MW; AC4688CD989C6E2AF CRC64;

Search completed: June 2, 2002, 18:04:51
Job time: 629 sec

Sun Jun 2 18:28:52 2002

us-09-642-277a-3.rsp

GenCore version 4.5
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OK protein - protein search, using sw model

Run on: June 2, 2002, 18:05:15 ; Search time 20.21 Seconds

(without alignments)
168,596 Million cell updates/sec

Title: US-09-642-277a-3

Sequence: 1 FLRIHPDRCVRCVREKSDPH.....ESNNYNTYRSKRTYSWYAL 88

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database: SwissProt_40.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match Length	ID	Description
1	467	100.0	155 1	FGF2_HUMAN
2	463	99.1	137 1	FGF2_RABIT
3	463	99.1	155 1	FGF2_BOVIN
4	463	99.1	155 1	FGF2_SHEEP
5	458	98.1	154 1	FGF2_MOUSE
6	458	98.1	154 1	FGF2_RAT
7	431	92.3	156 1	FGF2_MONDO
8	424	90.8	158 1	FGF2_CHICK
9	392	83.9	155 1	FGF2_XENLA
10	250	53.5	155 1	FGF1_MESAU
11	246	52.7	155 1	FGF1_MOUSE
12	243	52.0	155 1	FGF1_CHICK
13	240	51.4	155 1	FGF1_HUMAN
14	237	50.7	152 1	FGF1_PIG
15	229	49.0	155 1	FGF1_BOVIN
16	202	43.3	256 1	FGF3_BRARE
17	191.5	41.0	264 1	FGF5_MOUSE
18	191.5	41.0	266 1	FGF5_RAT
19	190	40.7	220 1	FGF3_CHICK
20	187.5	40.1	268 1	FGF5_HUMAN
21	186	39.8	237 1	FGF3_XENLA
22	185.5	39.7	245 1	FGF3_MOUSE
23	184.5	39.5	239 1	FGF3_HUMAN
24	182.5	39.1	194 1	EGF4_CHICK
25	178.5	38.2	208 1	FGF6_MOUSE
26	177.5	38.0	208 1	FGF6_HUMAN
27	173.5	37.2	187 1	FGF4_XENLA
28	172.5	36.8	206 1	FGF4_HUMAN
29	172	36.8	208 1	FGF4_HUMAN
30	172	36.8	215 1	FGF4_HUMAN
31	170.5	36.5	206 1	FGF4_BOVIN
32	168.5	36.1	192 1	FGF4_XENLA
33	168	36.0	209 1	FGF4_MOUSE

34	163	34.9	170	1	FGF4_HUMAN	O9hct0 homo sapien
35	160	34.3	194	1	FGF7_CANFA	P79150 canis famill
36	160	34.3	194	1	FGF7_MOUSE	P36363 mus musculu
37	159.5	34.2	202	1	FGF4_MOUSE	P11403 mus musculu
38	159	34.0	194	1	FGF4_SHEEP	P48808 ovis aries
39	158	33.8	194	1	FGF7_HUMAN	P21781 homo sapien
40	154	33.0	194	1	FGF7_PIG	O91875 sus scrofa
41	153	32.8	209	1	FGF9_XENLA	O54769 xenopus lae
42	152	32.5	207	1	FGFG_RAT	P54130 mus musculu
43	152	32.5	208	1	FGF9_HUMAN	P54130 mus musculu
44	152	32.5	208	1	FGF9_MOUSE	P54130 mus musculu
45	152	32.5	208	1	FGF9_RAT	P36364 rattus norv

ALIGNMENTS

RESULT	ID	STANDARD;	PRT;	155 AA.
FGF2_HUMAN	AC	01-NOV-1988 (Rel. 09, Created)		
FGF2_HUMAN	AC	01-NOV-1988 (Rel. 09, Last sequence update)		
FGF2_HUMAN	AC	01-MAR-2002 (Rel. 41, Last annotation update)		
FGF2_HUMAN	AC	Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).		
FGF2_HUMAN	AC	FGF2 OR FGF8.		
FGF2_HUMAN	AC	Homo sapiens (Human).		
FGF2_HUMAN	AC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;		
FGF2_HUMAN	AC	Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.		
FGF2_HUMAN	AC	NCBI_TaxID=9606;		
FGF2_HUMAN	AC	SEQUENCE FROM N.A.		
FGF2_HUMAN	AC	MEDLINE=87053817; PubMed=3780670;		
FGF2_HUMAN	AC	Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,		
FGF2_HUMAN	AC	Gospodarowicz D., Fiddes J.C.;		
FGF2_HUMAN	AC	"Human basic fibroblast growth factor: nucleotide sequence and		
FGF2_HUMAN	AC	genomic organization.";		
FGF2_HUMAN	AC	EMBO J. 5:2523-2528(1986).		
FGF2_HUMAN	AC	[2]		
FGF2_HUMAN	AC	SEQUENCE FROM N.A.		
FGF2_HUMAN	AC	MEDLINE=87217066; PubMed=3472745;		
FGF2_HUMAN	AC	Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;		
FGF2_HUMAN	AC	"Human basic fibroblast growth factor: nucleotide sequence, genomic		
FGF2_HUMAN	AC	organization, and expression in mammalian cells.";		
FGF2_HUMAN	AC	Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).		
FGF2_HUMAN	AC	[3]		
FGF2_HUMAN	AC	SEQUENCE FROM N.A.		
FGF2_HUMAN	AC	MEDLINE=87213238; PubMed=3579930;		
FGF2_HUMAN	AC	Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M.,		
FGF2_HUMAN	AC	Rifkin D.B.;		
FGF2_HUMAN	AC	"A form of human basic fibroblast growth factor with an extended		
FGF2_HUMAN	AC	amino terminus.";		
FGF2_HUMAN	AC	Biochem. Biophys. Res. Commun. 144:543-550(1987).		
FGF2_HUMAN	AC	[4]		
FGF2_HUMAN	AC	SEQUENCE FROM N.A.		
FGF2_HUMAN	AC	MEDLINE=87162468; PubMed=2435575;		
FGF2_HUMAN	AC	Kurokawa T., Sasada R., Iwano M., Igarashi K.;		
FGF2_HUMAN	AC	"Cloning and expression of cDNA encoding human basic fibroblast		
FGF2_HUMAN	AC	growth factor.";		
FGF2_HUMAN	AC	FEBS Lett. 213:189-194(1987).		
FGF2_HUMAN	AC	[5]		
FGF2_HUMAN	AC	SEQUENCE FROM N.A.		
FGF2_HUMAN	AC	MEDLINE=89184522; PubMed=2558817;		
FGF2_HUMAN	AC	Prates H., Kaghad M., Prates A.C., Klagesbrun M., Lellias J.M.,		
FGF2_HUMAN	AC	Lianzun P., Chalou P., Tauber J.P., Amalric F., Smith J.A.,		
FGF2_HUMAN	AC	Caput D.;		
FGF2_HUMAN	AC	"High molecular mass forms of basic fibroblast growth factor are		
FGF2_HUMAN	AC	initiated by alternative CUG codons.";		
FGF2_HUMAN	AC	Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).		
FGF2_HUMAN	AC	[6]		
FGF2_HUMAN	AC	SEQUENCE OF 10-35.		
FGF2_HUMAN	AC	MEDLINE=86275260; PubMed=3732516;		

RA Gautschi P., Frater-Schroeder M., Boehlen P.;
 RT "Partial molecular characterization of endothelial cell mitogens from
 RT human brain: acidic and basic fibroblast growth factors.";
 RL FEBS Lett. 204:203-207(1986).
 RN [17]
 RP MEDLINE-86186784; PubMed-3964259;
 RX "Human brain-derived acidic and basic fibroblast growth factors:
 RT amino terminal sequences and specific mitogenic activities.";
 RL Biochem. Biophys. Res. Commun. 135:541-548(1986).
 RN [18]
 RP SEQUENCE OF 2-22;
 RX MEDLINE-87156686; PubMed-2435284;
 RA Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K.;
 RT "Amino-terminal sequence of a large form of basic fibroblast growth
 RT factor isolated from human benign prostatic hyperplastic tissue.";
 RL Biochem. Biophys. Res. Commun. 142:702-709(1987).
 RN [19]
 RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
 RX MEDLINE-91195367; PubMed-1707542;
 RA Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;
 RT "Three-dimensional structure of human basic fibroblast growth
 RT factor.";
 RL Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
 RN [10]
 RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
 RX MEDLINE-94004464; PubMed-7691311;
 RA Eriksson A.E., Cousens L.S., Matthews B.W.;
 RT "Refinement of the structure of human basic fibroblast growth factor
 RT at 1.6-A resolution and analysis of presumed heparin binding sites by
 RT selenate substitution.";
 RL Protein Sci. 2:1274-1284(1993).
 RN [11]
 RP X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
 RX MEDLINE-91195368; PubMed-1849658;
 RA Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;
 RT "Three-dimensional structure of human basic fibroblast growth factor,
 RT a structural homolog of Interleukin 1 beta.";
 RL Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
 RN [12]
 RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
 RX MEDLINE-92121151; PubMed-1769963;
 RA Ago H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
 RT "Crystal structure of basic fibroblast growth factor at 1.6-A
 RT resolution.";
 RL J. Biochem. 110:360-363(1991).
 RN [13]
 RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
 RX MEDLINE-91095983; PubMed-1702556;
 RA Zhu X., Komiyama H., Chirino A., Faham S., Fox G.M., Arakawa T.,
 RT Hsu B.T., Rees D.C.;
 RT "Three-dimensional structures of acidic and basic fibroblast growth
 RT factors.";
 RL Science 251:90-93(1991).
 RN [14]
 RP STRUCTURE BY NMR.
 RX MEDLINE-97040521; PubMed-8885834;
 RA Moy F.J., Seddon A.P., Boehlen P., Powers R.;
 RT "High-resolution solution structure of basic fibroblast growth factor
 RT determined by multidimensional heteronuclear magnetic resonance
 RT spectroscopy.";
 RL Biochemistry 35:13552-13561(1996).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
 CC AFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC -----
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 CC -----
 DR EMBL; M17599; AAAS2534.1; ALT_INIT.
 DR EMBL; X04431; CAA28027.1; -
 DR EMBL; X04432; CAA28028.1; -
 DR EMBL; X04433; CAA28029.1; -
 DR EMBL; M27968; AAAS2448.1; -
 DR EMBL; J04513; AAAS2533.1; ALT_INIT.
 DR PIR; A25824; A25824.
 DR PIR; A26642; A26642.
 DR PIR; B24243; B24243.
 DR PIR; B24301; B24301.
 DR PIR; B32878; B32878.
 DR PIR; S00297; S00297.
 DR PDB; 2FGF; 15-APR-92.
 DR PDB; 4FGF; 15-JUL-93.
 DR PDB; 1FGA; 15-JUL-93.
 DR PDB; 1BFB; 03-APR-96.
 DR PDB; 1BFC; 03-APR-96.
 DR PDB; 1BFF; 16-JUN-97.
 DR PDB; 1BFG; 31-JAN-94.
 DR PDB; 2BFH; 30-APR-94.
 DR PDB; 1BLA; 08-NOV-96.
 DR PDB; 1BLD; 08-NOV-96.
 DR MIM; 134920; -
 DR InterPro: IPR002209; HBG_FGF.
 DR InterPro: IPR002348; ILL_HBG.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS; PR00262; ILL_HBG.
 DR PRODOM; PD000831; HBG_FGF_1.
 DR SMART; SM00442; FGF_1.
 DR PROSITE; PS00247; HBG_FGF_1.
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;
 KW 3D-structure.
 FT PROPEP 1
 FT CHAIN 1
 FT SITE 155
 FT SITE 48
 FT SITE 86
 FT BINDING 27
 FT BINDING 31
 FT BINDING 116
 FT STRAND 30
 FT STRAND 34
 FT STRAND 35
 FT STRAND 38
 FT STRAND 39
 FT STRAND 43
 FT STRAND 45
 FT STRAND 46
 FT STRAND 49
 FT STRAND 52
 FT STRAND 55
 FT STRAND 56
 FT STRAND 58
 FT STRAND 60
 FT STRAND 62
 FT STRAND 66
 FT STRAND 69
 FT STRAND 70
 FT STRAND 71
 FT STRAND 76
 FT STRAND 77
 FT STRAND 80
 FT STRAND 81
 FT STRAND 85
 FT STRAND 87
 FT STRAND 88
 FT STRAND 91
 FT STRAND 94
 FT STRAND 99
 FT STRAND 101
 FT STRAND 103
 FT STRAND 107
 FT STRAND 109
 FT STRAND 110
 FT STRAND 113
 FT STRAND 117
 FT STRAND 121
 FT STRAND 122
 FT STRAND 124
 FT STRAND 127
 FT STRAND 127
 FT STRAND 127
 FT STRAND 129
 FT STRAND 130
 FT STRAND 132
 FT STRAND 133
 FT STRAND 136
 FT STRAND 141
 FT STRAND 142
 FT STRAND 144
 FT STRAND 146
 FT STRAND 148
 FT STRAND 152
 FT SEQUENCE 155 AA; 17254 MW; BE6CE13373007129 CRC64;

Query Match 100.0%; Score 467; DB 1; Length 155;
 Best Local Similarity 100.0%; Pred. No. 8.2e-47;
 Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDCGRKSPDHILQLOAERGVYSIKGCANRYLAMKEDGRLLASKCYTD 60
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 DB 40 FLRIHPDGRVDCGRKSPDHILQLOAERGVYSIKGCANRYLAMKEDGRLLASKCYTD 99
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 61 ECFEERLESNNYNTYRSKRYSSWYAL 88
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 DB 100 ECFEERLESNNYNTYRSKRYSSWYAL 127

RESULT 2
 FGF2_RABIT STANDARD; PRT; 137 AA;

AC P46799;
 DT 01-FEB-1996 (Rel. 33, Created)
 DT 01-FEB-1996 (Rel. 33, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 (HBGF-2) (basic fibroblast growth factor) (BFGF) (Prostatropin) (Fragment).
 GN FGF2.
 OS Oryctolagus cuniculus (Rabbit).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
 OC NCBI_TaxID=9986;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=NEW ZEALAND WHITE; TISSUE=Smooth muscle;
 RX MEDLINE=93343209; PubMed=8342599;
 RA Winkles J.A., Friesele R., Alberts G.F., Janat M.F., Liu G.;
 RT "Elevated expression of basic fibroblast growth factor in an immortalized rabbit smooth muscle cell line."
 RL Am. J. Pathol. 143:518-527(1993).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AREF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC
 CC EMBL: L12034; AAA31248.1;
 DR HSSP; P09038; 1BFF.
 DR InterPro: IPR002209; HBGF_FGF.
 DR Pfam: PF00167; FGF_1.
 DR ProDom: PD000831; HBGF_FGF_1.
 DR SMART: SMO0442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT BINDING 18 22 HEPARIN (POTENTIAL).
 FT BINDING 107 110 HEPARIN (POTENTIAL).
 FT NON_TER 137 137
 SO SEQUENCE 137 AA; 15418 MW; 0D9E457B88BC51 CRC64;

Query Match 99.1%; Score 463; DB 1; Length 137;
 Best Local Similarity 96.9%; Pred. No. 2e-46;
 Matches 87; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
 QY 1 FLRIHPDGRVDCGRKSPDHILQLOAERGVYSIKGCANRYLAMKEDGRLLASKCYTD 60
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

DB 31 FLRIHPDGRVDCGRKSPDHILQLOAERGVYSIKGCANRYLAMKEDGRLLASKCYTD 90
 QY 61 ECFEERLESNNYNTYRSKRYSSWYAL 88
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 DB 91 ECFEERLESNNYNTYRSKRYSSWYAL 118

RESULT 3
 FGF2_BOVIN STANDARD; PRT; 155 AA.

AC P03969;
 DT 23-OCT-1986 (Rel. 02, Created)
 DT 23-OCT-1986 (Rel. 02, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (basic fibroblast growth factor) (BFGF) (Prostatropin) [Contains: Kidney-derived growth factor].
 GN FGF2 OR FGF-2.
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea; Bovidae; Bovinae; Bos.
 OC NCBI_TaxID=9913;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC MEDLINE=86261806; PubMed=2425435;
 RX Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerlild K.A., Gospodarowicz D., Fiddes J.C.;
 RT "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor."
 RL Science 233:545-548(1986).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC MEDLINE=87217066; PubMed=3472745;
 RX Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
 RT "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells."
 RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
 RN [3]
 RP SEQUENCE OF 10-155.
 RX MEDLINE=86016731; PubMed=3863109;
 RA Esch F., Baird A., Ling N., Deno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.;
 RT "Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FGF."
 RL Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).
 RN [4]
 RP SEQUENCE OF 1-9.
 RX MEDLINE=86295737; PubMed=3741423;
 RA Deno N., Baird A., Esch F., Ling N., Guillemin R.;
 RT "Isolation of an amino terminal extended form of basic fibroblast growth factor."
 RL Biochem. Biophys. Res. Commun. 138:580-588(1986).
 RN [5]
 RP SEQUENCE OF 25-41.
 RC TISSUE=Kidney;
 RX MEDLINE=86093426; PubMed=4081126;
 RA Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;
 RT "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor."
 RL Regul. Pept. 12:201-213(1985).
 RN [6]
 RP SEQUENCE OF 21-40.
 RC TISSUE=Kidney;
 RX MEDLINE=87119165; PubMed=3809608;
 RA Ueno N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R.;
 RT "Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic fibroblast growth factor."
 RL Regul. Pept. 16:135-145(1986).
 RN [7]

RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
 RX MEDLINE-91095983; PubMed-1702556;
 RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
 RA Hsu B.T., Rees D.C.;
 RT "Three-dimensional structures of acidic and basic fibroblast growth
 RT factors".
 RL Science 251:90-93(1991).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
 CC ARGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC
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 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: M13440; AAA30518.1; -
 DR PIR: A24663; GKBOB.
 DR PIR: A24819; A24819.
 DR PIR: A32878; A32878.
 DR PDB: 1BAS; 31-OCT-93.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; IL1HBGF.
 DR PRODOM: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding;
 DR 3D-structure.
 KW PROPEP 1 9
 FT CHAIN 10 155
 FT CHAIN 25 155
 FT SITE 46 48
 FT SITE 88 90
 FT BINDING 27 31
 FT BINDING 116 119
 FT STRAND 30 34
 FT TURN 35 38
 FT STRAND 39 43
 FT TURN 45 46
 FT STRAND 49 52
 FT TURN 55 56
 FT HELIX 58 60
 FT STRAND 62 68
 FT TURN 69 70
 FT STRAND 71 76
 FT TURN 77 80
 FT STRAND 81 85
 FT TURN 87 88
 FT STRAND 91 94
 FT HELIX 99 101
 FT STRAND 103 107
 FT TURN 109 110
 FT STRAND 113 117
 FT TURN 121 122
 FT STRAND 124 124
 FT STRAND 127 127
 FT TURN 129 130
 FT STRAND 133 133
 FT HELIX 136 138
 FT TURN 141 142
 FT HELIX 144 146
 FT STRAND 148 151
 FT SEQUENCE 155 AA; 17250 MW; BE6CE70FA6107129 CRC64;

Query Match 99.1%; Score 463; DB 1; Length 155;
 Best Local Similarity 98.9%; Pred. No. 2,4e-46;
 Matches 87; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
 OY 1 FLRIHDDGVDCVREKSDPHILQLQAEKRGVYSIKVCANRYLAKKEGRLASKCYTD 60
 DB 40 FLRIHDDGVDCVREKSDPHILQLQAEKRGVYSIKVCANRYLAKKEGRLASKCYTD 99
 OY 61 ECFPERLESNNYNTYRSKRYTSWYVAL 88
 DB 100 ECFPERLESNNYNTYRSKRYTSWYVAL 127
 RESULT 4
 FGF2_SHEEP STANDARD; PRT; 155 AA.
 ID FGF2_SHEEP
 AC P20003;
 DT 01-FEB-1991 (Rel. 17, Created)
 DT 01-FEB-1996 (Rel. 33, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (basic fibroblast
 DE growth factor) (BGF) (Prostatropin).
 GN FGF2 OR FGF-2.
 OS Ovis aries (Sheep).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Caprinae; Ovis.
 OX NCBI_TaxID:9940;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
 RL Submitted (SEP-1994) to the EMBL/GenBank/DBJ databases.
 RN [2]
 RP SEQUENCE OF 9-155.
 RX MEDLINE-88055577; PubMed-3678486;
 RA Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
 RA Rudira M.R., Burgess A.W.;
 RT "Primary structure of ovine pituitary basic fibroblast growth
 RT factor".
 RL FEBS Lett. 224:128-132(1987).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
 CC ARGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC
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 CC -----
 DR EMBL: L36136; AAA31519.1; -
 DR PIR: S00185; S00185.
 DR HSP: P09038; ABF.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; IL1HBGF.
 DR PRODOM: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding;
 KW PROPEP 1 9
 FT CHAIN 10 155
 FT CHAIN 45 48
 FT SITE 10 155
 FT SITE 45 48
 FT SEQUENCE 155 AA; 17250 MW; BE6CE70FA6107129 CRC64;

FT SITE 87 90 CELL ATTACHMENT SITE (POTENTIAL).
 FT BINDING 27 31 HEPARIN (POTENTIAL).
 FT BINDING 116 119 HEPARIN (POTENTIAL).
 SO SEQUENCE 155 AA; 17280 MW; B5F2364BA610606D CRC64;

Query Match
 Best Local Similarity 98.1%; Score 463; DB 1; Length 155;
 Matches 87; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPGKRVGVREKSDPHIKILOAEERGVYSIKGVCANRYLAMKEDGRLASKCVTD 60
 DB 40 FLRIHPGKRVGVREKSDPHIKILOAEERGVYSIKGVCANRYLAMKEDGRLASKCVTD 99
 QY 61 ECFEERLESNNNTYRSKRYTSWYAL 88
 DB 100 ECFEERLESNNNTYRSKRYTSWYAL 127

RESULT 5
 FG2_MOUSE
 ID FG2_MOUSE STANDARD; PRT; 154 AA.
 AC P15655;
 DT 01-APR-1990 (Rel. 14, Created)
 DT 01-APR-1990 (Rel. 14, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BRGF) (Prostatropin).
 GN FG2 OR FG-2.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OX NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=90201563; PubMed=2318343;
 RA Hebert J.M., Basilio C., Goldfarb M., Haub O., Martin G.R.;
 RT Isolation of cDNAs encoding four mouse RGF family members and characterization of their expression patterns during embryogenesis.*;
 RL Dev. Biol. 138:434-463(1990).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC STRAIN=C57BL/6J, A/J, AND NOD/LtJ; TISSUE=Spleen;
 RA Ma R.Z., Teuscher C.;
 RL Submitted (May-1998) to the EMBL/GenBank/DBJ databases.
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC
 DR EMBL: M30644; AAA37621.1;
 DR EMBL: AF065903; AAC17503.1;
 DR EMBL: AF065904; AAC17504.1;
 DR EMBL: AF065905; AAC17505.1;
 DR PIR: C37360; C37360.
 DR HSSP: P09038; 1BFP.
 DR MGD: MGI:95516; Fgf2.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; ILI_HBGF.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; ILHBGF.

DR PRODOM: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT PROPEP 1 9
 FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
 FT BINDING 26 30 HEPARIN (POTENTIAL).
 FT BINDING 115 118 HEPARIN (POTENTIAL).
 SO SEQUENCE 154 AA; 17153 MW; 689F677416274388 CRC64;

Query Match
 Best Local Similarity 98.1%; Score 458; DB 1; Length 154;
 Matches 85; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPGKRVGVREKSDPHIKILOAEERGVYSIKGVCANRYLAMKEDGRLASKCVTD 60
 DB 39 FLRIHPGKRVGVREKSDPHIKILOAEERGVYSIKGVCANRYLAMKEDGRLASKCVTD 98
 QY 61 ECFEERLESNNNTYRSKRYTSWYAL 88
 DB 99 ECFEERLESNNNTYRSKRYTSWYAL 126

RESULT 6
 FG2_RAT
 ID FG2_RAT STANDARD; PRT; 154 AA.
 AC P13109;
 DT 01-JAN-1990 (Rel. 13, Created)
 DT 01-JAN-1990 (Rel. 13, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BRGF) (Prostatropin).
 GN FG2 OR FG-2.
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 OX NCBI_TaxID=10116;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Ovary;
 RX MEDLINE=89061721; PubMed=3196337;
 RA Shimaseki S., Emoto N., Koba A., Mercado M., Shibata F., Cooksey K., Baird A., Ling N.;
 RT Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of its mRNA.*;
 RL Biochem. Biophys. Res. Commun. 157:256-263(1988).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Brain;
 RX MEDLINE=88262516; PubMed=3387229;
 RA Kurokawa T., Sano M., Igarashi K.;
 RT Nucleotide sequence of rat basic fibroblast growth factor cDNA.*;
 RL Nucleic Acids Res. 16:5201-5201(1988).
 RN [3]
 RP SEQUENCE OF 1-28 FROM N.A.
 RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Testis;
 RX MEDLINE=9720905; PubMed=9048734;
 RA Pasumathil K.B.S., Jin Y., Cattini P.A.;
 RT Cloning of the rat fibroblast growth factor-2 promoter region and its response to mitogenic stimuli in glioma C6 cells.*;
 RL J. Neurochem. 68:898-908(1997).
 RN [4]
 RP SEQUENCE OF 35-154 FROM N.A.
 RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Brain;
 RX MEDLINE=92329546; PubMed=1378302;
 RA El-Husseini I.A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
 RT PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA containing a unique 3' untranslated region.*;
 RL Biochem. Biophys. Acta 1131:314-316(1992).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND

CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC
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CC or send an email to license@isb-sib.ch).
CC
CC EMBL: M22427; AAA1210.1; -
CC EMBL: X07285; CAA30265.1; -
CC EMBL: U78079; AAC53225.1; -
CC EMBL: X61697; CAA43863.1; -
CC PIR: S00876; S00876.
CC PIR: A31674; A31674.
CC HSSP: P09038; 1BFF.
CC InterPro: IPR002209; HBGF_FGF.
CC InterPro: IPR002348; IL1_HBGF.
CC Pfam: PF00167; FGF_1.
CC PRINTS: PR00262; IL1HBGF.
CC ProDom: PD000831; HBGF_FGF; 1.
CC SMART: SM00442; FGF_1.
CC PROSITE: PS00247; HBGF_FGF; 1.
CC Growth factor; Mitogen; Angiogenesis; Heparin-binding.
CC PROPEP 1 9
CC CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
CC BINDING 26 30 HEPARIN (POTENTIAL).
CC BINDING 115 138 HEPARIN (POTENTIAL).
CC SEQUENCE 134 AA; 17139 MW; 1A0E14FF423D8403 CRC64;
SQ
Query Match 98.1%; Score 458; DB 1; Length 154;
Best Local Similarity 96.6%; Pred. No. 8.8e-46;
Matches 85; Conservative 3; Mismatches 0; Indels 0; Gaps 0;
QY 1 FLRIHDPGRVGVREKSDPIKILQLOAERGVSIGVCANRYLAKKEDRLASKCYTD 60
DB 39 FLRIHDPGRVGVREKSDPIKILQLOAERGVSIGVCANRYLAKKEDRLASKCYTE 98
QY 61 ECFEERLESNNNTYRSKRYTSYVAL 88
DB 99 ECFEERLESNNNTYRSKRYTSYVAL 126
RESULT 7
FGF2_MONDO
ID FGF2_MONDO STANDARD: PRT; 156 AA.
AC P48798;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF) (Procatropin).
GN FGF2.
OS Monodelphis domestica (Short-tailed grey opossum).
OC Eukaryota; Metazoa; Chordata; Cranata; Vertebrata; Euteleostomi;
OC Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
OX NCBI_TaxID=13616;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-Eye;
RA MEDLINE=94296558; PubMed=8024698;
RA Kusevlt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;
RT Characterization of cDNA encoding basic fibroblast growth factor of
RT the marsupial Monodelphis domestica.*
RL DNA Cell Biol. 13:543-554(1994).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS

CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC
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CC
CC EMBL: Z15154; CAA78854.1; ALT_INIT.
CC HSSP: P09038; 1BFF.
CC InterPro: IPR002209; HBGF_FGF.
CC InterPro: IPR002348; IL1_HBGF.
CC Pfam: PF00167; FGF_1.
CC PRINTS: PR00262; IL1HBGF.
CC ProDom: PD000831; HBGF_FGF; 1.
CC SMART: SM00442; FGF_1.
CC PROSITE: PS00247; HBGF_FGF; 1.
CC Growth factor; Mitogen; Angiogenesis; Heparin-binding.
CC PROPEP 1 9
CC CHAIN 10 156 HEPARIN-BINDING GROWTH FACTOR 2.
CC BINDING 28 32 HEPARIN (POTENTIAL).
CC BINDING 117 120 HEPARIN (POTENTIAL).
CC SEQUENCE 156 AA; 17303 MW; 7E655FCC49BF1209 CRC64;
SQ
Query Match 92.3%; Score 431; DB 1; Length 156;
Best Local Similarity 92.0%; Pred. No. 1.2e-42;
Matches 81; Conservative 5; Mismatches 2; Indels 0; Gaps 0;
QY 1 FLRIHDPGRVGVREKSDPIKILQLOAERGVSIGVCANRYLAKKEDRLASKCYTD 60
DB 41 FLRIHDPGRVGVREKSDPIKILQLOAERGVSIGVCANRYLAKKEDRLALKYVE 100
QY 61 ECFEERLESNNNTYRSKRYTSYVAL 88
DB 101 ECFEERLESNNNTYRSKRYTSYVAL 128
RESULT 8
FGF2_CHICK
ID FGF2_CHICK STANDARD: PRT; 158 AA.
AC P48800;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF).
GN FGF2 OR FGF-2.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Cranata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RC MEDLINE=93246053; PubMed=7683281;
RA Borja A.Z., Zeller R., Meljers C.;
RT *Expression of alternatively spliced bfgf first coding exons and
RT antisense mRNAs during chicken embryogenesis.*
RL Dev. Biol. 157:110-118(1993).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.

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CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC ARGF
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
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CC -----
DR EMBL: M95707; AAA48617.1;
DR HSSP: P09038; 18FF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF_1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
DR PROPEP 1 12
DR CHAIN 13 158 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 30 34 HEPARIN (POTENTIAL).
FT BINDING 119 122 HEPARIN (POTENTIAL).
FT BINDING 158 AA; 17374 MW; 786984C17F1816 CRC64;
SQ SEQUENCE
Query Match 90.8%; Score 424; DB 1; Length 158;
Best Local Similarity 90.9%; Pred. No. 7.5e-42;
Matches 80; Conservative 4; Mismatches 4; Indels 0; Gaps 0;
QY 1 FLRIHPGSRVGVREKSPHIKLOLAERGVSTIKGVANRYLAKMKEDGRLSKCYTD 60
DB 43 FLRIHSDGRVGVREKSPHIKLOLAERGVSTIKGVANRYLAKMKEDGRLSKCYTE 102
QY 61 ECFEERLESNNYNTYRSKRTYSWYAL 88
DB 103 ECFEERLESNNYNTYRSKRTYSWYAL 130
RESULT 9
FGF2_XENLA STANDARD; PRT; 155 AA.
AC P12226;
DT 01-OCT-1989 (Rel. 12, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF).
GN FGF2 OR FGF-2.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipridae; Pipidae;
OC Xenopodidae; Xenopus.
OX NCBI_TaxID=8355;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=89058621; Pubmed=3194757;
RA Krimelman D., Abraham J., Haaparanta T., Pallis T., Kirschner M.;
RT "The presence of fibroblast growth factor in the frog egg: its role
RT as a natural mesoderm inducer."
RL Science 242:1053-1056(1988).
RN [2]
RP SEQUENCE OF 95-155 FROM N.A.
RX MEDLINE=88052890; Pubmed=3479265;
RA Krimelman D., Kirschner M.;
RT "Synergistic induction of mesoderm by FGF and TGF-beta and the
RT identification of an mRNA coding for FGF in the early xenopus
RT embryo."
RL Cell 51:869-877(1987).
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

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DR EMBL: M18067; AAA49726.1;
DR PIR: A29618; A29618.
DR PIR: A40117; A40117.
DR HSSP: P09038; 18FF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF_1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
DR PROPEP 1 9
DR CHAIN 10 155 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 27 31 HEPARIN (POTENTIAL).
FT BINDING 116 119 HEPARIN (POTENTIAL).
FT CONFLICT 111 111 MISSING (IN REF. 2).
SQ SEQUENCE 155 AA; 17241 MW; 036735C8063142RD CRC64;
Query Match 83.9%; Score 392; DB 1; Length 155;
Best Local Similarity 83.0%; Pred. No. 3.5e-38;
Matches 73; Conservative 8; Mismatches 7; Indels 0; Gaps 0;
QY 1 FLRIHPGSRVGVREKSPHIKLOLAERGVSTIKGVANRYLAKMKEDGRLSKCYTD 60
DB 40 FLRIHSDGRVGVREKSPHIKLOLAERGVSTIKGVANRYLAKMKEDGRLSKCYTD 99
QY 61 ECFEERLESNNYNTYRSKRTYSWYAL 88
DB 100 ECFEERLESNNYNTYRSKRTYSWYAL 127
RESULT 10
FGF1_MESAU STANDARD; PRT; 155 AA.
AC P34004;
DT 01-FEB-1994 (Rel. 28, Created)
DT 01-FEB-1994 (Rel. 28, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
DE growth factor) (AFGF).
GN FGF1 OR FGF-1.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Mesocricetus.
OX NCBI_TaxID=10036;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=90270291; Pubmed=1693366;
RA Hall J.A., Harris M.A., Malack M., Manasson P.E., Zhou H., Harris S.E.;
RT "Characterization of the hamster Ddr-1 cell atgf/HBGF-1 gene and CDNA
RT and its modulation by steroids."
RL J. Cell. Biochem. 43:17-26(1990).
RN [2]
RP FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
RN IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
RN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
RN CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
DR PIR: A60721; A60721.

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DR HSP: P05230; IRML.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; IL1HBGF.
 DR PRODOM: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 KW PROPEP 1
 FT CHAIN 15
 FT BINDING 24
 FT BINDING 113
 SO SEQUENCE 155 AA; 17403 MW; 41E5EC760E412CC5 CRC64;

Query Match 53.5%; Score 250; DB 1; Length 155;
 Best Local Similarity 55.6%; Pred. No. 8e-22;
 Matches 50; Conservative 11; Mismatches 27; Indels 2; Gaps 1;

QY 1 FLRIHPDGVYDVRKSDPHIKLOLAERGVSVIKVCANRYLAKREDGRLASKCVTD 60
 DB 37 FLRIHPDGVYDVRKSDPHIKLOLAERGVSVIKVCANRYLAKREDGRLASKCVTD 60
 QY 61 ECFPERLESNNYNTYSRKYT--SWYVAL 88
 DB 97 ECLFLERLEENHYNTYSKHAERKNMFVGL 126

RESULT 11
 ID FGF1_MOUSE STANDARD; PRT; 155 AA.
 AC P10935;
 DT 01-JUL-1989 (Rel. 11, Created)
 DT 01-JUL-1989 (Rel. 11, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF).
 GN FGF1 OR FGF-1 OR FGFA.
 OS Mus musculus (Mouse), and
 OS Rattus norvegicus (Rat).
 OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 NC NCBL_TaxID-10090; 10116;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC SPECIES-Rat;
 RA MEDLINE-89240051; PubMed-2470029;
 RA Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
 RT "The nucleotide sequence of rat heparin binding growth factor 1 (HBGF-1).";
 RL Nucleic Acids Res. 17:2867-2867(1989).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC SPECIES-Mouse;
 RA MEDLINE-90201563; PubMed-2318343;
 RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
 RT "Isolation of cDNAs encoding four mouse FGF family members and characterization of their expression patterns during embryogenesis.";
 RL Dev. Biol. 138:454-463(1990).
 RN [3]
 RP SEQUENCE FROM N.A.
 RC SPECIES-Mouse;
 RA MEDLINE-97128312; PubMed-8972905;
 RA Madal F., Hackshaw K.V., Chiu I.M.;
 RT "Cloning and characterization of the mouse Fgf-1 gene.";
 RL Gene 179:231-236(1996).
 RN [4]
 RP SEQUENCE FROM N.A.
 RC SPECIES-Mouse; STRAIN-BALB/C;
 RA MEDLINE-97094746; PubMed-8939980;
 RA Alam K.Y., Frosthalm A., Hackshaw K.V., Evans J.E., Rötter A., Chiu I.M.;

RT "Characterization of the 1B promoter of fibroblast growth factor 1 and its expression in the adult and developing mouse brain";
 RL J. Biol. Chem. 271:30263-30271(1996).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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DR EMBL: X14232; CA32448.1; -
 DR EMBL: M30641; AA37618.1; -
 DR EMBL: U36459; AAC52969.1; -
 DR EMBL: U36457; AAC52969.1; JOINED.
 DR EMBL: U36458; AAC52969.1; JOINED.
 DR EMBL: U67610; AAC52907.1; -
 DR PIR: S04147; S04147.
 DR PIR: D37360; D37360.
 DR HSSP: P05230; IRML.
 DR MGI: MGI:95515; Fgf1.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; IL1HBGF.
 DR PRODOM: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT PROPEP 1
 FT CHAIN 15
 FT BINDING 16
 FT BINDING 24
 FT BINDING 113
 SO SEQUENCE 155 AA; 17418 MW; 880E4F0FPA4161 CRC64;

Query Match 52.7%; Score 246; DB 1; Length 155;
 Best Local Similarity 54.4%; Pred. No. 2.3e-21;
 Matches 49; Conservative 12; Mismatches 27; Indels 2; Gaps 1;

QY 1 FLRIHPDGVYDVRKSDPHIKLOLAERGVSVIKVCANRYLAKREDGRLASKCVTD 60
 DB 37 FLRIHPDGVYDVRKSDPHIKLOLAERGVSVIKVCANRYLAKREDGRLASKCVTD 60
 QY 61 ECFPERLESNNYNTYSRKYT--SWYVAL 88
 DB 97 ECLFLERLEENHYNTYSKHAERKNMFVGL 126

RESULT 12
 ID FGF1_CHICK STANDARD; PRT; 155 AA.
 AC P19596;
 DT 01-FEB-1991 (Rel. 17, Created)
 DT 01-FEB-1996 (Rel. 33, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (alpha-endothelial cell growth factor).
 GN FGF1 OR FGF-1.
 OS Gallus gallus (Chicken).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
 OC Gallus.
 NC NCBL_TaxID-9031;
 RN [1]
 RP SEQUENCE FROM N.A.

RX MEDLINE-91347925; PubMed-1715259;
 RA Schmeurch H., Risau W.;
 RT "Differentiating and mature neurons express the acidic fibroblast
 RT growth factor gene during chick neural development.";
 RL Development 111:1143-1154(1991).
 RN [2]
 RP SEQUENCE FROM N.A.
 RA Martin G.R., Han J.K.;
 RL Submitted (JUL-1995) to the EMBL/GenBank/DBJ databases.
 RN [3]
 RP SEQUENCE OF 22-48.
 RX MEDLINE-88296438; PubMed-3402441;
 RA Risau W., Gautschi-Sova P., Boehlen P.;
 RT "Endothelial cell growth factors in embryonic and adult chick brain
 RT are related to human acidic fibroblast growth factor.";
 RL EMBO J. 7:959-962(1988).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
 CC THAN DOES BFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC -----
 DR EMBL: S63263; AAB19629.1; -
 DR EMBL: U31863; AAA80310.1; -
 DR EMBL: S63261; AAD13942.1; -
 DR PTR: S02639; S02639.
 DR HSSP: P05230; 2AXM.
 DR InterPro: IPR002209; HBG_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; IL1HBGF.
 DR PRODOM: PD000831; HBG_FGF; 1.
 DR SMART: SM00442; FGF; 1.
 DR PROSITE: PS00247; HBG_FGF; 1.
 KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT PROPEP 1 15
 FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
 FT BINDING 22 155 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
 FT BINDING 113 116 HEPARIN (POTENTIAL).
 FT BINDING 113 116 HEPARIN (POTENTIAL).
 SQ SEQUENCE 155 AA; 17322 MW; 8EDB70545E2B4365 CRC64;
 Query Match 52.0%; Score 243; DB 1; Length 155;
 Best Local Similarity 53.3%; Pred. No. 5, 1e-21;
 Matches 48; Conservative 15; Mismatches 25; Indels 2; Gaps 1;
 Oy 1 FLRIHGDGRVGYREKSDPIKIKLOAEAGVYSIKGVCANRIKLAKEDGLASKCVTD 60
 Db 37 FLRIHGDGRVGYREKSDPIKIKLOAEAGVYSIKGVCANRIKLAKEDGLASKCVTD 60
 Oy 61 ECFPERLESNNYNTYRSKRYT--SNVVAL 88
 Db 97 ECFPERLESNNYNTYRSKRYT--SNVVAL 88
 RESULT 13
 ID FGF1_HUMAN STANDARD; PRT; 155 AA.
 AC P05230; P07502;
 DT 13-AUG-1987 (Rel. 05, Created)
 DT 13-AUG-1987 (Rel. 05, Last sequence update)

DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
 DE growth factor) (AFGF) (Beta-endothelial cell growth factor) (BCGF-
 DE beta)
 GN FGF1 OR FGF1.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 OX NCBI_TaxId=9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE-86261805; PubMed-3523756;
 RA Jaye M., Hawk R., Burgess W., Ricca G.A., Chiu I.-M., Ravera M.W.,
 RA O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;
 RT "Human endothelial cell growth factor: cloning, nucleotide sequence,
 RT and chromosome localization."; Science 233:541-545(1986).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE-Brain stem;
 RX MEDLINE-89343957; PubMed-2474753;
 RA Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;
 RT "Cloning of the gene coding for human class I heparin-binding growth
 RT factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989).
 RN [3]
 RP SEQUENCE FROM N.A.
 RC TISSUE-Brain stem;
 RX MEDLINE-90265618; PubMed-1693186;
 RA Chiu I.M., Wang W.P., Lehtoma K.;
 RT "Alternative splicing generates two forms of mRNA coding for human
 RT heparin-binding growth factor 1."; Oncogene 5:755-762(1990).
 RN [4]
 RP SEQUENCE FROM N.A.
 RX MEDLINE-90073637; PubMed-2590193;
 RA Merigla A., Tischer E., Graves D., Tunoio A., Miller J.,
 RA Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;
 RT "Structural analysis of the gene for human acidic fibroblast growth
 RT factor."; Biochem. Res. Commun. 164:1121-1129(1989).
 RN [5]
 RP SEQUENCE FROM N.A.
 RX MEDLINE-92019819; PubMed-1717925;
 RA Wang W.P., Quick D., Balczak S.P., Needleman S.W., Chiu I.M.;
 RT "Cloning and sequence analysis of the human acidic fibroblast growth
 RT factor gene and its preservation in leukemia patients."; Oncogene 6:1521-1529(1991).
 RN [6]
 RP SEQUENCE FROM N.A.
 RX MEDLINE-92202857; PubMed-1372643;
 RA Li Y.L., Kna H., Golden J.A., Mischelisen A.A.J., Goetzl E.J.,
 RA Turk E.J.;
 RT "An acidic fibroblast growth factor protein generated by alternate
 RT splicing acts like an antagonist."; J. Exp. Med. 175:1073-1080(1992).
 RN [7]
 RP SEQUENCE OF 1-154 FROM N.A.
 RX MEDLINE-94069734; PubMed-7504343;
 RA Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;
 RT "The expression of acidic fibroblast growth factor (heparin-binding
 RT growth factor-1) and cytokine genes in human cardiac allografts and T
 RT cells."; Transplantation 56:1177-1182(1993).
 RN [8]
 RP SEQUENCE OF 1-40 FROM N.A.
 RX MEDLINE-90365758; PubMed-2393407;
 RA Crumley G., Dionne C.A., Jaye M.;
 RT "The gene for human acidic fibroblast growth factor encodes two
 RT upstream exons alternatively spliced to the first coding exon."; Biochem. Biophys. Res. Commun. 171:7-13(1990).
 RN [9]
 RP SEQUENCE OF 16-155.

RA MEDLINE-86296647; PubMed-2427112;
 RA Harper J.W., Striydom D.J., Lobb R.R.;
 RT "Human class I heparin-binding growth factor: structure and homology
 RT to bovine acidic brain fibroblast growth factor.";
 RL Biochemistry 25:4097-4103(1986).
 RN [10]
 RP SEQUENCE OF 16-155.
 RA MEDLINE-86295741; PubMed-3527167;
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
 RT "The complete amino acid sequence of human brain-derived acidic
 RT fibroblast growth factor.";
 RL Biochem. Biophys. Res. Commun. 138:611-617(1986).
 RN [11]
 RP SEQUENCE OF 16-155.
 RA MEDLINE-87048871; PubMed-3778488;
 RA Gautschi-Sova P., Mueller T., Boehlen P.;
 RT "Amino acid sequence of human acidic fibroblast growth factor.";
 RL Biochem. Biophys. Res. Commun. 140:874-880(1986).
 RN [12]
 RP SEQUENCE OF 16-47.
 RA MEDLINE-86186784; PubMed-3964259;
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
 RT "Human brain-derived acidic and basic fibroblast growth factors:
 RT amino terminal sequences and specific mitogenic activities.";
 RL Biochem. Biophys. Res. Commun. 135:541-548(1986).
 RN [13]
 RP SEQUENCE OF 16-49.
 RA MEDLINE-86275260; PubMed-3732516;
 RA Gautschi P., Frater-Schroeder M., Boehlen P.;
 RT "Partial molecular characterization of endothelial cell mitogens from
 RT human brain: acidic and basic fibroblast growth factors.";
 RL FEBS Lett. 204:203-207(1986).
 RN [14]
 RP X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).
 RA MEDLINE-96194129; PubMed-8652550;
 RA Blaber M., Disalvo J., Thomas K.A.;
 RT "X-ray crystal structure of human acidic fibroblast growth factor.";
 RL Biochemistry 35:2086-2094(1996).
 RN [15]
 RP STRUCTURE BY NMR OF 24-155.
 RA MEDLINE-94358885; PubMed-7521397;
 RA Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico M.,
 RT "H-NMR assignment and solution structure of human acidic fibroblast
 RT growth factor activated by inositol hexasulfate.";
 RL J. Mol. Biol. 242:81-98(1994).
 RN [16]
 RP STRUCTURE BY NMR OF 24-155.
 RA MEDLINE-97107535; PubMed-8950275;
 RA Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J.,
 RT "Three-dimensional structure of acidic fibroblast growth factor in
 RT solution: effects of binding to a heparin functional analog.";
 RL J. Mol. Biol. 264:162-178(1996).
 RN [17]
 RP STRUCTURE BY NMR OF 25-155.
 RA MEDLINE-98387896; PubMed-9719643;
 RA Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.;
 RT "Solution structure of acidic fibroblast growth factor bound to 1,3,
 RT 6-naphthalenesulfonate: a minimal model for the anti-tumoral
 RT action of suramin and suradistas.";
 RL J. Mol. Biol. 281:899-915(1998).
 CC - FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC - SUBUNIT: MONOMER.
 CC - MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
 CC THAN DOES BEGF.
 CC - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC -----
 CC EMBL: M13361; AAA79245.1; -
 CC DR EMBL: X51943; CAA36206.1; -
 CC DR EMBL: M30492; AAA52446.1; -
 CC DR EMBL: M30490; AAA52446.1; JOINED.
 CC DR EMBL: M30491; AAA52446.1; JOINED.
 CC DR EMBL: M60515; AAA51672.1; -
 CC DR EMBL: M60516; AAA51673.1; -
 CC DR EMBL: M23087; AAA52638.1; -
 CC DR EMBL: M23086; AAA52638.1; JOINED.
 CC DR EMBL: S67291; AAB29057.2; -
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 CC DR PIR: A23553; A23553.
 CC DR PIR: A24243; A24243.
 CC DR PIR: A24301; A24301.
 CC DR PIR: A24662; A24662.
 CC DR PIR: A24820; A24820.
 CC DR PIR: A26386; A26386.
 CC DR PIR: A33665; A33665.
 CC DR PIR: S18217; S18217.
 CC DR PDB: 2AFG; 15-OCT-95.
 CC DR PDB: 1AXM; 22-APR-98.
 CC DR PDB: 2AXM; 22-APR-98.
 CC DR PDB: 1RMJ; 11-NOV-98.
 CC DR MIM: 131220; -
 CC DR InterPro: IPR002209; HBGF_FGF.
 CC DR InterPro: IPR002348; ILL_HBGF.
 CC DR Pfam: PF00167; FGF_1.
 CC DR PRINTS: PR00262; ILL_HBGF.
 CC DR PRODOM: PD000831; HBGF_FGF_1.
 CC DR SMART: SM00442; FGF_1.
 CC DR PROSITE: PS00247; HBGF_FGF_1.
 CC KM Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;
 CC 3D-structure. 1 15
 CC FT PROPEP 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
 CC FT MOD_RES 2 2 ACETYLTATION.
 CC FT BINDING 24 28 HEPARIN (POTENTIAL).
 CC FT BINDING 113 116 HEPARIN (POTENTIAL).
 CC SO SEQUENCE 155 AA; 17460 MW; F586E8BB09F1580 CRC64;
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 CC Query Match 51.4%; Score 240; DB 1; Length 155;
 CC Best Local Similarity 54.4%; Pred. No. 1; le-20;
 CC Matches 49; Conservative 11; Mismatches 28; Indels 2; Gaps 1;
 CC QY 1 FLRIHPGKRVDSYREKSDPHIKQLQAEKGVVSIKGVCANRYLAKMKEDRLASKCVD 60
 CC DB 37 FLRIHPGVYDGRSDHDIQLQSAESVGEYIKSTETGYLAMDLDGLGSGTPNE 96
 CC QY 61 ECFPEERLESNNNTYRSRYT--SWYVAL 88
 CC DB 97 ECFLEERLEENHNTYISKRAEKNMFVGL 126
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 CC RESULT 14
 CC FGF1_PIG STANDARD; PRT; 152 AA.
 CC AC F20002;
 CC DT 01-FEB-1991 (Rel. 17, Created)
 CC DT 01-FEB-1996 (Rel. 33, Last sequence update)
 CC DT 01-MAR-2002 (Rel. 41, Last annotation update)
 CC DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
 CC growth factor) (AFGF) (Alpha-endothelial cell growth factor)
 CC DE (fragment).
 CC GN FGF1 OR FGF-1.
 CC OS Sus scrofa (Pig).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

CC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
 OK NCBI_TaxID=9823;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Heart;
 RX MEDLINE=92062117; PubMed=1719973;
 RA Schmidt M., Sharma H.S., Schott R.J., Schaper W.;
 RT "Amplification and sequencing of mRNA encoding acidic fibroblast
 RL growth factor (AFGF) from porcine heart."
 RN Biochem. Biophys. Res. Commun. 180:853-859(1991).
 RP [2]
 RP SEQUENCE OF 22-41.
 RX MEDLINE=89231704; PubMed=2714282;
 RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
 RA Sharma H.S., Schaper W.;
 RT "Isolation of heparin-binding growth factors from bovine, porcine and
 RL canine hearts."
 RN Eur. J. Biochem. 181:67-73(1989).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
 CC THAN DOES BFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC -----
 DR EMBL: X60317; CAA42869.1; -
 DR PTR: S03954; S03954.
 DR HSSP: P05230; ZAXM.
 DR InterPro: IPR002209; HBGF_FGF.
 DR Pfam: PF00167; FGF_1.
 DR ProDom: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR SMART: PS00247; HBGF_FGF_1.
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 KW PROPEP 1
 FT CHAIN 16
 FT CHAIN 22
 FT BINDING 24
 FT BINDING 113
 FT CONFLICT 31
 FT CONFLICT 39
 FT NON_TER 152
 FT SEQUENCE 152 AA; 17103 MW; AE853B0A92F9ABF4 CMC64;
 Query Match 50.7%; Score 237; DB 1; Length 152;
 Best Local Similarity 53.3%; Pred. No. 2.5e-20;
 Matches 48; Conservative 12; Mismatches 28; Indels 2; Gaps 1;
 QY 1 FLRIHPGSRVGVREKSPHIKLOIAEERGVSIGVCANRYAMKEDGRLAKCVTD 60
 DB 37 FLRLPDVDTGTRSDOHITOLQISASVEVYIKSTETQYLAIMTSGILYGSQTPSE 96
 QY 61 ECFPERLESNNYNSRYKT--SMYVAL 88
 DB 97 ECLFLERLENNYNTYSKHAERKNMEVGL 126
 RESULT 15
 FGFI_BOVIN
 ID FGFI_BOVIN STANDARD; PRT; 155 AA.
 AC P03968;
 DT 23-OCT-1986 (Rel. 02, Created)

DT 01-MAR-1989 (Rel. 10, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (acidic fibroblast
 DE growth factor) (AFGF) (prostatropin) (endothelial cell growth factor
 DE beta and alpha chains) (Acidic eye-derived growth factor II) (EDGF
 DE II).
 GN FGFI OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea;
 OC Bovidae; Bovinae; Bos.
 OK NCBI_TaxID=9913;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Retina.
 RX MEDLINE=89083506; PubMed=3205724;
 RA Halley C., Courtois Y., Laurent M.;
 RT "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA."
 RN Nucleic Acids Res. 16:10913-10913(1988).
 RL [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Retina.
 RX MEDLINE=89078619; PubMed=2849564;
 RA Alterio J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M.;
 RT "Characterization of a bovine acidic FGF cDNA clone and its
 RT expression in brain and retina."
 RN FEBS Lett. 242:41-46(1988).
 RL [3]
 RP SEQUENCE OF 2-155.
 RX MEDLINE=87016918; PubMed=3532107;
 RA Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., Maciag T.;
 RT "Structural evidence that endothelial cell growth factor beta is the
 RT precursor of both endothelial cell growth factor alpha and acidic
 RT fibroblast growth factor."
 RN Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
 RL [4]
 RP SEQUENCE OF 2-155.
 RX MEDLINE=87026586; PubMed=3768327;
 RA Crabbs J.W., James L.G., Carr S.A., Johnson C.M., Roberts G.D.,
 RA Bordoli R.S., McKeehan W.L.;
 RT "Complete primary structure of prostatropin, a prostate epithelial
 RT cell growth factor."
 RN Biochemistry 25:4988-4993(1986).
 RL [5]
 RP SEQUENCE OF 16-155.
 RX MEDLINE=86070224; PubMed=4071057;
 RA Gimenez-Galligo G., Rodkey J., Bennett C., Rios-Candelore M.,
 RA Disalvo J., Thomas K.;
 RT "Brain-derived acidic fibroblast growth factor: complete amino acid
 RT sequence and homologies."
 RN Science 230:1385-1388(1985).
 RL [6]
 RP SEQUENCE OF 16-44, AND COMPOSITION.
 RX MEDLINE=86055750; PubMed=4065099;
 RA Boehlen P., Esch F., Baird A., Gospodarowicz D.;
 RT "Acidic fibroblast growth factor (FGF) from bovine brain:
 RT amino-terminal sequence and comparison with basic FGF."
 RN EMBO J. 4:1951-1956(1985).
 RN [7]
 RP SEQUENCE OF 16-56 FROM N.A.
 RX MEDLINE=86261806; PubMed=2425435;
 RA Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J.,
 RA Hjertrud K.A., Gospodarowicz D., Fiddes J.C.;
 RT "Nucleotide sequence of a bovine clone encoding the angiogenic
 RT protein, basic fibroblast growth factor."
 RN Science 233:545-548(1986).
 RL [8]
 RP SEQUENCE OF 16-45.
 RX MEDLINE=89231704; PubMed=2714282;
 RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
 RA Sharma H.S., Schaper W.;
 RT "Isolation of heparin-binding growth factors from bovine, porcine and
 RT canine hearts."

RL Eur. J. Biochem. 181:67-73(1989).
RN [9]
RP SEQUENCE OF 1-18 FROM N.A.
RA Philippe J.M., Renaud F., Desset S., Laurent M.;
RL Submitted (JUL-1992) to the EMBL/Genbank/DBJ databases.
RN [10]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RA MEDLINE-91095983; PubMed-1702556;
RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
RA Hsu B.T., Rees D.C.;
RT "Three-dimensional structures of acidic and basic fibroblast growth
RT factors".
RL Science 251:90-93(1991).
CC -I- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO. THERE ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -I- SUBUNIT: MONOMER.
CC -I- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES bFGF.
CC -I- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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DR EMBL: M13439; AAA30516.1; -
DR EMBL: X13221; CAA31610.1; -
DR EMBL: X14032; CAA32192.1; -
DR EMBL: M35608; AAA30517.1; -
DR EMBL: X66446; CAA47063.1; -
DR EMBL: M97660; AAA30563.1; -
DR EMBL: M97661; AAA30564.1; -
DR PIR: A01385; GKBOA.
DR PIR: A25043; A25043.
DR PIR: B25043; B25043.
DR PIR: C25043; C25043.
DR PIR: A24477; A24477.
DR PIR: B24663; B24663.
DR PIR: S02102; S02102.
DR PDB: 1BAR; 31-OCT-93.
DR PDB: 1AFC; 31-OCT-93.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;
KW 3D-structure.
FT PROPEP 1 15
FT CHAIN 2 155
FT CHAIN 16 155
FT CHAIN 22 155
FT MOD_RES 2 2
FT BINDING 24 28
FT BINDING 113 116
FT STRAND 32 34
FT STRAND 37 40
FT STRAND 42 43
FT STRAND 46 49
FT STRAND 55 57
FT HELIX 59 61
FT STRAND 69 69
FT STRAND 71 73
FT STRAND 79 82
FT TURN 84 85
FT TURN 85 85
ENDOTHELIAL CELL GROWTH FACTOR BETA.
HEPARIN-BINDING GROWTH FACTOR 1.
ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
ACETYLATION.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).

FT STRAND 87 91
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FT STRAND 110 111
FT STRAND 113 114
FT TURN 116 121
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FT STRAND 126 126
FT TURN 128 129
FT STRAND 132 132
FT STRAND 134 134
FT HELIX 135 137
FT TURN 140 141
FT TURN 144 145
FT STRAND 147 150
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Query Match 49.0%; Score 229; DB 1; Length 155;
Best Local Similarity 52.2%; Pred. No. 2.1e-19;
Matches 47; Conservative 12; Mismatches 29; Indels 2; Gaps 1;
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Db 37 FLRIHDPGVDCVREKSDPHIKIQIAERGVSTIGVCANRYLAKKEGRLIASCYTD 60
QY 61 ECFPERLESNNYNTYRSRKYTS--WYVAL 88
Db 97 ECLFLERLEENHYNTYISKKAHEKHFFVGL 126

Search completed: June 2, 2002, 18:05:15
Job time: 243 sec

Sun Jun 2 18:28:51 2002

us-09-642-277a-3.rsp

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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:02:20 ; Search time 35.96 Seconds

(without alignments)
235.146 Million cell updates/sec

Title: US-09-642-277A-3

Perfect score: 467

Sequence: 1 FLRIHPGGRVDGVRKSDPH.....ESNNYMYRSKRKTSMTVAL 88

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match Length	ID	Description
1	467	100.0	210 2	A32398 basic fibroblast g
2	463	99.1	137 2	146711 fibroblast growth
3	463	99.1	146 1	S00185 basic fibroblast g
4	463	99.1	157 1	GKROB basic fibroblast g
5	458	98.1	154 2	A31674 basic fibroblast g
6	458	98.1	154 2	C37360 basic fibroblast g
7	431	92.3	164 2	S31622 basic fibroblast g
8	424	90.8	189 2	A48834 basic fibroblast g
9	392	83.9	155 1	A40117 basic fibroblast g
10	250	53.5	155 1	A60721 acidic fibroblast
11	246	52.7	155 2	S04147 acidic fibroblast
12	246	52.7	155 2	D37360 acidic fibroblast
13	243	52.0	155 2	A60130 acidic fibroblast
14	240	51.4	155 1	A33665 acidic fibroblast
15	237	50.7	152 2	JH0476 acidic fibroblast
16	233	49.9	155 2	JH0055 acidic fibroblast
17	229	49.0	155 1	GKROA acidic fibroblast
18	202	43.3	256 2	JC4627 acidic fibroblast
19	194	41.5	125 2	A32484 basic fibroblast g
20	191.5	41.0	264 2	A36207 basic fibroblast g
21	191.5	41.0	266 2	S68144 fibroblast growth
22	190	40.7	220 2	I50588 fibroblast growth
23	187.5	40.1	267 1	TVH0F5 fibroblast growth
24	186	39.8	237 1	S39582 transforming prote
25	185.5	39.7	245 1	TVH0F5 transforming prote
26	184.5	39.5	239 1	S04742 fibroblast growth
27	182.5	39.1	272 1	I50710 fibroblast growth
28	178.5	38.2	208 2	S14192 fibroblast growth
29	177.5	38.0	208 2	S20102 fibroblast growth

30	173.5	37.2	187	2	S23595 embryonic fibroblast
31	172.5	36.9	206	1	TVH0F5 fibroblast growth
32	169.5	36.3	206	2	JC4268 fibroblast growth
33	168.5	36.1	192	2	S54407 embryonic fibroblast
34	160	34.3	194	2	I48610 keratinocyte growth
35	159.5	34.2	202	1	TVH0F5 keratinocyte growth
36	159	34.0	194	2	S49501 keratinocyte growth
37	158	33.8	194	1	A36301 fibroblast growth
38	157	33.6	194	2	S26049 fibroblast growth
39	154	33.0	208	2	JC7082 fibroblast growth
40	152	32.5	207	2	JC5940 fibroblast growth
41	152	32.5	208	2	S6486 fibroblast growth
42	152	32.5	208	2	A48137 fibroblast growth
43	151	32.3	207	2	JC5941 fibroblast growth
44	151	32.3	211	2	JC7353 fibroblast growth
45	147	31.5	212	2	JC7511 fibroblast growth

ALIGNMENTS

RESULT 1
A32398
Basic fibroblast growth factor precursor, 22.5K form - human
N:Alternate names: bFGF, fibroblast growth factor 2; prostatic growth factor; prosta
M:Contains: basic fibroblast growth factor, 18K form
C:Species: Homo sapiens (man)
C>Date: 31-Jul-1989 #sequence, revision 31-Dec-1993 #ext, change 21-Jul-2000
C:Accession: A32398; A61537; A26642; B32878; S00297; A54316; A33624; A25824;
R:Prats, H.; Kaghad, M.; Prats, A.C.; Kingsbrun, M.; Lejtas, J.M.; Lianzun, P.; Chal
Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989
A>Title: High molecular mass forms of basic fibroblast growth factor are initiated b
A:Reference number: A32398; MUID:89184522
A:Accession: A32398
A:Molecule type: mRNA
A:Residues: 1-210 <PRA>
A:Cross-references: GB:J04513; NID:9183083; PIDN:AAA52531.1; PID:9459811
R:Shibata, F.; Balid, A.; Flokiewicz, R.Z.
Growth Factors 4, 277-287, 1991
A>Title: Functional characterization of the human basic fibroblast growth factor gen
A:Reference number: A61537; MUID:92110035
A:Accession: A61537
A:Molecule type: DNA
A:Residues: 1-114 <SHI>
A>Note: authors translated the codon GGA for residue 47 as Ala
R:Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.
FEBS Lett. 213, 189-194, 1987
A>Title: Cloning and expression of cDNA encoding human basic fibroblast growth facto
A:Reference number: A26642; MUID:87162468
A:Accession: A26642
A:Molecule type: mRNA
A:Residues: 56-210 <KUR>
A:Cross-references: GB:M27968; NID:9182562; PIDN:AAA52448.1; PID:9182563
R:Abraham, J.A.; Whang, J.L.; Tumbolo, A.; Merz, A.; Fliddes, J.C.
Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986
A>Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organiza
A:Reference number: A90924; MUID:87217066
A:Accession: B32878
A:Molecule type: mRNA
A:Residues: 56-210 <ABR>
A>Note: the authors translated the codon GAA for residue 108 as Gly
R:Abraham, J.A.; Whang, J.L.; Tumbolo, A.; Merz, A.; Fliddes, J.C.
EMBO J. 5, 2523-2528, 1986
A>Title: Human basic fibroblast growth factor: nucleotide sequence and genomic organ
A:Reference number: S00297; MUID:87053817
A:Accession: S00297
A>Status: not compared with conceptual translation
A:Molecule type: DNA
A:Residues: 1-155 <ABR>
A>Note: the authors translated the codon GAA for residue 108 as Gly
R:Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.
Jpn. J. Cancer Res. 82, 1263-1270, 1991
A>Title: Characterization of high-molecular-mass forms of basic fibroblast growth fa

rctinogenesis.
 A:Reference number: A54316; MUID:92091228
 A:Accession: A54316
 A:Molecule type: Protein
 A:Residues: 'XX', 86-88, 'X', 90-91, 'X', 93-95 <SH3>
 A:Experimental source: C-1121 hepatocellular carcinoma cell line
 A:Note: Sequence extracted from NCBI backbone (NCBIP:71595)
 A:Accession: B54316
 A:Molecule type: Protein
 A:Residues: 'XXX', 19, 'X', 21-29 <SH2>
 A:Note: Sequence extracted from NCBI backbone (NCBIP:71594)
 R:Feige, J.J.; Bradley, J.D.; Fryburg, K.; Farris, J.; Consens, L.C.; Barr, P.J.; Baird, J. Cell Biol. 109, 3105-3114, 1989
 A:Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylation of tyrosine
 A:Reference number: A33624; MUID:90078343
 A:Accession: A33624
 A:Status: preliminary
 A:Molecule type: Protein
 A:Residues: 57-210 <FEI>
 R:Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.
 Biochem. Biophys. Res. Commun. 142, 702-709, 1987
 A:Title: Amino-terminal sequence of a large form of basic fibroblast growth factor isolate
 A:Reference number: A25824; MUID:87156686
 A:Accession: A25824
 A:Molecule type: Protein
 A:Residues: 57-77 <STO>
 R:Experimental source: prostate
 R:Giemenes-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
 Biochem. Biophys. Res. Commun. 135, 541-548, 1986
 A:Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal
 A:Reference number: A90122; MUID:86186784
 A:Accession: B24243
 A:Molecule type: Protein
 A:Residues: 65-102, 'X', 104-105 <GIN>
 A:Experimental source: brain
 R:Gautschi, P.; Frater-Schroder, M.; Bohlen, P.
 FEBS Lett. 204, 203-207, 1986
 A:Title: Partial molecular characterization of endothelial cell mitogens from human brain
 A:Reference number: A91364; MUID:86275260
 A:Accession: B24301
 A:Molecule type: Protein
 A:Residues: 65-88, 'X', 90-98, 'X', 100 <GAD>
 R:Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.
 Biochem. Biophys. Res. Commun. 144, 543-550, 1987
 A:Title: A form of human basic fibroblast growth factor with an extended amino terminus
 A:Reference number: S42242; MUID:87131338
 A:Accession: S42242
 A:Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 54-210 <SOM>
 A:Cross-references: EMBL:M17599; NID:G183086; PIDN:AAA52534.1; PID:G183087
 R:Pantoliato, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.
 Biochemistry 33, 10229-10248, 1994
 A:Title: Multivalent ligand-receptor binding interactions in the fibroblast growth factor
 A:Reference number: A55784; MUID:94347757
 A:Accession: B55784
 A:Molecule type: Protein
 A:Residues: 54-71 <PAN>
 R:Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.
 Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992
 A:Title: Reverse transcription with nested polymerase chain reaction shows expression of
 clients.
 A:Reference number: I52267; MUID:93038590
 A:Accession: I52267
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 95-182 <RNS>
 A:Cross-references: GB:S47380; NID:9256535; PIDN:AAI3853.1; PID:94261553
 A:Experimental source: granulosa cells
 R:Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H.
 FEBS Lett. 349, 23-28, 1994
 A:Title: Purification and characterization of the 210-amino acid recombinant basic fibro
 A:Reference number: S46253; MUID:94320639

A:Accession: S46253
 A:Molecule type: Protein
 A:Residues: 39-53; 65-88 <PAT>
 A:Note: recombinant gene expressed in Escherichia coli
 C:Genetics:
 A:Gene: GDB:FGF2; FGF2
 A:Cross-references: GDB:119910; OMIM:134920
 A:Map position: 4q25-4q27
 A:Start codon: CTG
 C:Superfamily: fibroblast growth factor
 C:Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; mit
 F:1-210/Product: basic fibroblast growth factor, 22.5k form #status predicted <MA>
 F:65-210/Product: basic fibroblast growth factor, 18k form #status predicted <MA>
 F:82-86/Region: heparin binding #status predicted
 F:171-174/Region: heparin binding #status predicted

 Query Match 100.0%; Score 467; DB 2; Length 210;
 Best Local Similarity 100.0%; Pred. No. 5.4e-45;
 Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

 QY 1 FLRIHEDGVYDGVREKSDPHIKLOAERGVYSTIGVCANRYLAKKEGRLASRCVTD 60
 |||||||
 DB 95 FLRIHEDGVYDGVREKSDPHIKLOAERGVYSTIGVCANRYLAKKEGRLASRCVTD 154
 |||||||
 QY 61 ECFEERLESNNNTYRSKRTSMYVAL 88
 |||||||
 DB 155 ECFEERLESNNNTYRSKRTSMYVAL 182
 |||||||

 RESULT 2
 146711
 fibroblast growth factor - rabbit (fragment)
 C:Species: Oryctolagus cuniculus (domestic rabbit)
 C:Date: 14-Feb-1997 #sequence-revision 14-Feb-1997 #text-change 16-Jul-1999
 C:Accession: I46711
 R:Winkles, J.A.; Friesel, R.; Alberts, G.F.; Janat, M.F.; Llau, G.
 Am. J. Pathol. 143, 518-527, 1993
 A:Title: Elevated expression of basic fibroblast growth factor in an immortalized rat
 A:Reference number: I46711; MUID:93343209
 A:Accession: I46711
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-137 <WIN>
 A:Cross-references: GB:I12034; NID:G165014; PIDN:AAA31248.1; PID:G165015
 C:Superfamily: fibroblast growth factor

 Query Match 99.1%; Score 463; DB 2; Length 137;
 Best Local Similarity 98.9%; Pred. No. 9.4e-45;
 Matches 87; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

 QY 1 FLRIHEDGVYDGVREKSDPHIKLOAERGVYSTIGVCANRYLAKKEGRLASRCVTD 60
 |||||||
 DB 31 FLRIHEDGVYDGVREKSDPHIKLOAERGVYSTIGVCANRYLAKKEGRLASRCVTD 90
 |||||||
 QY 61 ECFEERLESNNNTYRSKRTSMYVAL 88
 |||||||
 DB 91 ECFEERLESNNNTYRSKRTSMYVAL 118
 |||||||

 RESULT 3
 S00185
 basic fibroblast growth factor - sheep
 N:Alternate names: prostatiopin
 C:Species: Ovis orientalis aries; Ovis ammon aries (domestic sheep)
 C:Date: 10-Sep-1999 #sequence-revision 10-Sep-1999 #text-change 10-Sep-1999
 C:Accession: S00185
 R:Stimson, R.J.; Moritz, R.L.; Lloyd, C.J.; Padit, L.J.; Nice, E.C.; Rudira, M.R.; B
 FEBS Lett. 224, 128-132, 1987
 A:Title: Primary structure of ovine pituitary basic fibroblast growth factor.
 A:Reference number: S00185; MUID:88055577
 A:Accession: S00185

A:Molecule type: protein
 A:Residues: 1-146 <SMB>
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor; heparin binding; mitogen
 F:18-22/Region: heparin binding #status predicted
 F:107-110/Region: heparin binding #status predicted

Query Match 99.1%; Score 463; DB 1; Length 146;
 Best Local Similarity 98.9%; Pred. No. 1e-44;
 Matches 87; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPGQVGVREKSPHIKIQLOAERGVSVIKGCANRYLAMKEDGRLLASKCYTD 60
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 DB 31 FLRIHPGQVGVREKSPHIKIQLOAERGVSVIKGCANRYLAMKEDGRLLASKCYTD 90

QY 61 ECFPERLESNNYNTYRSKRTYSWYAL 88
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 DB 91 ECFPERLESNNYNTYRSKRTYSWYAL 118

RESULT 4

GKBOB
 basic fibroblast growth factor precursor - bovine (fragment)

N:Alternate names: bFGF; kidney-derived growth factor; prostatiopin
 C:Species: Bos primigenius taurus (cattle)

C>Date: 13-Aug-1986 #sequence, revision 02-Jun-1995 #text, change 24-Nov-1999
 C:Accession: A24663; A32878; A33784; A61551; A60310; A61094; A01386; A60316; A22

R:Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedmann, J.; Hjertild, K.A.; Goss
 Science 233, 545-548, 1986

A:Title: Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fi
 A:Reference number: A94290; MUID:86261806

A:Accession: A24663
 A:Molecule type: mRNA

A:Residues: 3-157 <ABR>
 A:Cross-references: GB:M13440; NID:g163049; PIDN:AAJ30518.1; PID:g163050

R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes, J.C.
 Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986

A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organization
 A:Reference number: A90924; MUID:87217066

A:Accession: A32878
 A:Molecule type: mRNA

A:Residues: 3-157 <AB2>
 R:Miller, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.

Biochem. Biophys. Res. Commun. 165, 1096-1103, 1989
 A:Title: A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purified
 A:Reference number: A33784; MUID:90121211

A:Accession: A33784
 A:Molecule type: protein

A:Residues: 1-14 <MTL>
 A:Note: demonstration of a possible alternative initiator or splice junction

R:Berthelot, J.; Hearn, M.T.W.
 Mol. Cell. Endocrinol. 51, 187-199, 1987

A:Title: Isolation, characterization and tissue localisation of an N-terminal-truncated
 A:Reference number: A61550; MUID:87247652

A:Accession: A61550
 A:Molecule type: protein

A:Residues: 16-35 <BER>
 R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.

Mol. Cell. Endocrinol. 49, 189-194, 1987
 A:Title: Isolation and partial characterization of basic fibroblast growth factor from h
 A:Reference number: A61551; MUID:87162856

A:Accession: A61551
 A:Molecule type: protein

A:Residues: 27-35, 'X', 37-41 <UE3>
 A:Experimental source: testes

A:Note: this form appears to be identical to the renal form
 R:Ueno, N.; Baird, A.; Esch, F.; Shimazaki, S.; Ling, N.; Guillemin, R.
 Regul. Pept. 16, 135-145, 1986

A:Title: Purification and partial characterization of a mitogenic factor from bovine liv
 A:Reference number: A60310; MUID:87119165
 A:Accession: A60310

A:Molecule type: protein
 A:Residues: 23-35, 'X', 37-42 <UEN>

A:Experimental source: liver
 R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.

Biochem. Biophys. Res. Commun. 138, 580-588, 1986
 A:Title: Isolation of an amino terminal extended form of basic fibroblast growth fa
 A:Reference number: A24819; MUID:86295737

A:Contents: annotation
 A:Note: the amino end of this form was blocked; the peptide composition matched wha

R:Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.; Bohlen, P.
 Endocrinology 118, 82-90, 1986

A:Title: Isolation of fibroblast growth factor from bovine adrenal gland: physicoch
 A:Reference number: A61094; MUID:86081530

A:Accession: A61094
 A:Molecule type: protein

A:Residues: 12-25, 27-35, 'X', 37-40 <GOS>
 A:Experimental source: adrenal gland

R:Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gosp
 Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985

A:Title: Primary structure of bovine pituitary basic fibroblast growth factor (FGF)
 A:Reference number: A01386; MUID:86016731

A:Accession: A01386
 A:Molecule type: protein

A:Residues: 12-157 <ESC>
 A:Experimental source: pituitary gland

R:Baird, A.; Esch, F.; Bohlen, P.; Ling, N.; Gospodarowicz, D.
 Regul. Pept. 12, 201-213, 1985

A:Title: Isolation and partial characterization of an endothelial cell growth factor
 A:Reference number: A60316; MUID:86095426

A:Accession: A60316
 A:Molecule type: protein

A:Residues: 27-35, 'X', 37-43 <BAI>
 A:Experimental source: kidney

R:Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
 Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984

A:Title: Isolation and partial molecular characterization of pituitary fibroblast gr
 A:Reference number: A22054; MUID:84298139

A:Accession: A22054
 A:Molecule type: protein

A:Residues: 12-26 <BOH>
 C:Comment: The acidic and basic fibroblast growth factors are the major endothelial

cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulati
 C:Comment: This protein binds heparin more strongly than does aFGF.

C:Superfamily: fibroblast growth factor
 C:Keywords: alternative splicing; angiogenesis; blocked amino end; growth factor; he

F:1-157/Product: basic fibroblast growth factor, uterine form #status predicted <MA
 F:4-157/Product: basic fibroblast growth factor, pituitary gamma form #status experi

F:12-157/Product: basic fibroblast growth factor, pituitary alpha form #status experi
 F:16-157/Product: basic fibroblast growth factor, pituitary short form #status predi

F:23-157/Product: basic fibroblast growth factor, hepatic form #status experimental
 F:27-157/Product: basic fibroblast growth factor, renal form #status experimental
 F:29-33, 118-121/Region: heparin binding #status predicted

F:4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma). (probabl
 F:4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma). (probabl

Query Match 99.1%; Score 463; DB 1; Length 157;
 Best Local Similarity 98.9%; Pred. No. 1.1e-44;
 Matches 87; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPGQVGVREKSPHIKIQLOAERGVSVIKGCANRYLAMKEDGRLLASKCYTD 60
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 DB 42 FLRIHPGQVGVREKSPHIKIQLOAERGVSVIKGCANRYLAMKEDGRLLASKCYTD 101

QY 61 ECFPERLESNNYNTYRSKRTYSWYAL 88
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 DB 102 ECFPERLESNNYNTYRSKRTYSWYAL 129

RESULT 5

A31674
 basic fibroblast growth factor precursor - rat
 N:Alternate names: bFGF
 C:Species: Rattus norvegicus (Norway rat)

C>Date: 21-May-1990 #sequence_revision 21-May-1990 #text_change 16-Jul-1999
C:Accession: A31674; S00876; S24309
R:Shimazaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.;
Biochem. Biophys. Res. Commun. 157, 256-263, 1988
A:Title: Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth
A:Reference number: A31674; MUID:89061721
A:Accession: A31674
A:Molecule type: mRNA
A:Residues: 1-154 <SHD>
A:Cross-references: GB:M22427; NID:9204285; PIDN:AAA41210.1; PID:g204286
R:Kurokawa, T.; Seno, M.; Igarashi, K.
Nucleic Acids Res. 16, 5201, 1988
A:Title: Nucleotide sequence of rat basic fibroblast growth factor cDNA.
A:Reference number: S00876; MUID:88262516
A:Accession: S00876
A:Molecule type: mRNA
A:Residues: 1-154 <KUR>
A:Cross-references: EMBL:X07285; NID:956203; PIDN:CAA30265.1; PID:956204
R:El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.
Biochim. Biophys. Acta 1131, 314-316, 1992
A:Title: PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA cont
A:Reference number: S24309; MUID:92329546
A:Accession: S24309
A>Status: preliminary; translation not shown
A:Molecule type: mRNA
A:Residues: 35-154 <ELH>
A:Cross-references: EMBL:X61697; NID:956143; PIDN:CAA3863.1; PID:956144
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor
F:1.9/Domains: signal sequence #status predicted <SIG>
F:10-154/Product: basic fibroblast growth factor #status predicted <MAT>

Query Match 98.1%; Score 458; DB 2; Length 154;
Best Local Similarity 96.6%; Pred. No. 3.9e-44;
Matches 85; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

Qy 1 FLRIHPGGRVGVREKSDPHIKILOAEERGVSIKVCANRYLAMKEDGRLASKCYTD 60
|||||
Db 39 FLRIHPGGRVGVREKSDPHIKILOAEERGVSIKVCANRYLAMKEDGRLASKCYTE 98
|||||

Qy 61 ECFPERLESNNYNTYRSKRTSYVAL 88
|||||
Db 99 ECFPERLESNNYNTYRSKRTSYVAL 126
|||||

RESULT 6
C37360
basic fibroblast growth factor - mouse
C:Species: Mus musculus (house mouse)
C>Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
C:Accession: C37360
R:Hebert, J.M.; Basillio, C.; Goldfarb, M.; Haub, O.; Martin, G.R.
Dev. Biol. 138, 454-463, 1990
A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization
A:Reference number: A37360; MUID:90201563
A:Accession: C37360
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-154 <HEB>
A:Cross-references: GB:M30644; NID:9193296; PIDN:AAA37621.1; PID:g309239
C:Superfamily: fibroblast growth factor

Db 99 ECFPERLESNNYNTYRSKRTSYVAL 126
|||||

RESULT 7
S31622
basic fibroblast growth factor - short-tailed opossum (Monodelphis domestica) (fragm
C:Species: Monodelphis domestica
C>Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 12-Apr-1995
C:Accession: S31622
R:Kosewitt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D.
submitted to the EMBL data library, September 1992
A:Description: Characterization of cDNA encoding basic fibroblast growth factor of t
A:Reference number: S31622
A:Accession: S31622
A>Status: preliminary
A:Molecule type: DNA
A:Residues: 1-164 <KUS>
A:Cross-references: EMBL:Z15154
C:Superfamily: fibroblast growth factor

Query Match 92.3%; Score 431; DB 2; Length 164;
Best Local Similarity 92.0%; Pred. No. 4.6e-41;
Matches 81; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

Qy 1 FLRIHPGGRVGVREKSDPHIKILOAEERGVSIKVCANRYLAMKEDGRLASKCYTD 60
|||||
Db 49 FLRIHPGGRVGVREKSDPHIKILOAEERGVSIKVCANRYLAMKEDGRLASKCYTE 108
|||||

Qy 61 ECFPERLESNNYNTYRSKRTSYVAL 88
|||||
Db 109 ECFPERLESNNYNTYRSKRTSYVAL 136
|||||

RESULT 8
A48834
basic fibroblast growth factor - chicken
C:Species: Gallus gallus (chicken)
C>Date: 01-Dec-1993 #sequence_revision 18-Nov-1994 #text_change 16-Jul-1999
C:Accession: A48834; S23636
R:Bojia, A.Z.; Meijers, C.; Zeller, R.
Dev. Biol. 157, 110-118, 1993
A:Title: Expression of alternatively spliced bFGF first coding exons and antisense m
A:Reference number: A48834; MUID:93246053
A:Accession: A48834
A>Status: preliminary
A:Molecule type: nucleic acid
A:Residues: 1-189 <BOR>
A:Experimental source: embryo
A:Note: sequence extracted from NCBI backbone (NCBI:131000, NCBI:131001)
R:Miltrui, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
Development 109, 387-393, 1990
A:Title: Fibroblast growth factor during mesoderm induction in the early chick embryo
A:Reference number: S23636; MUID:90382254
A:Accession: S23636
A>Status: preliminary
A:Molecule type: DNA
A:Residues: 95-128 <MIT>
A:Cross-references: EMBL:X56804; NID:962855; PIDN:CAA40139.1; PID:962856
C:Superfamily: fibroblast growth factor

Query Match 98.1%; Score 458; DB 2; Length 154;
Best Local Similarity 96.6%; Pred. No. 3.9e-44;
Matches 85; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

Qy 1 FLRIHPGGRVGVREKSDPHIKILOAEERGVSIKVCANRYLAMKEDGRLASKCYTD 60
|||||
Db 39 FLRIHPGGRVGVREKSDPHIKILOAEERGVSIKVCANRYLAMKEDGRLASKCYTE 98
|||||

Qy 61 ECFPERLESNNYNTYRSKRTSYVAL 88
|||||

Query Match 90.8%; Score 424; DB 2; Length 189;
Best Local Similarity 90.9%; Pred. No. 3.3e-40;
Matches 80; Conservative 4; Mismatches 4; Indels 0; Gaps 0;

Qy 1 FLRIHPGGRVGVREKSDPHIKILOAEERGVSIKVCANRYLAMKEDGRLASKCYTD 60
|||||
Db 74 FLRIHPGGRVGVREKSDPHIKILOAEERGVSIKVCANRYLAMKEDGRLASKCYTE 133
|||||

Qy 61 ECFPERLESNNYNTYRSKRTSYVAL 88
|||||

DB 134 ECFEERLESNNYNTYRSKRYSDMYVAL 161

RESULT 9

A40117
basic fibroblast growth factor - African clawed frog
C:Species: Xenopus laevis (African clawed frog)
C:Accession: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
R:Klmeiman, D.; Abraham, J.A.; Haaparanta, T.; Palisi, T.M.; Kirschner, M.W.
Science 242, 1053-1056, 1988
A:Title: The presence of fibroblast growth factor in the frog egg: its role as a natural
A:Reference number: A40117; MUID:89058621
A:Accession: A40117
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-155 <KIM>
A:Cross-references: GB:M18067; NID:g214177; PIDN:AAA9726.1; PID:g214178; GB:M21092
R:Klmeiman, D.; Kirschner, M.
Cell 51, 869-877, 1987
A:Title: Synergistic induction of mesoderm by FGF and TGF-beta and the identification of
A:Reference number: A29618; MUID:88052890
A:Accession: A29618
A:Molecule type: mRNA
A:Residues: 95-110,112-155 <KIT>
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor

Query Match

Best Local Similarity 83.9%; Score 392; DB 1; Length 155;
Matches 73; Conservative 8; Mismatches 7; Indels 0; Gaps 0;

DB 1 FLRIHDPGRVDGVRKSDPHIKILOAERGVSISIKGCANRYLAMKEDGRLASKCVTD 60

DB 40 FLRIHDPGRVDGVRKSDPHIKILOAERGVSISIKGCANRYLAMKEDGRLASKCVTD 99

DB 61 ECFEERLESNNYNTYRSKRYT--SWYVAL 88

DB 100 ECFEERLESNNYNTYRSKRYT--SWYVAL 127

RESULT 10

A60721
acidic fibroblast growth factor - golden hamster
N:Alternate names: heparin-binding growth factor 1
C:Species: Mesocricetus auratus (golden hamster)
C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
R:Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, R.; Harris, S.E.
J. Cell. Biochem. 43, 17-26, 1990
A:Title: Characterization of the hamster DDT-1 cell aFGF/HBGF-1 gene and cDNA and its mc
A:Reference number: A60721; MUID:90270291
A:Accession: A60721
A:Status: not compared with conceptual translation
A:Molecule type: DNA
A:Residues: 1-155 <HAL>
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor; heparin binding

Query Match

Best Local Similarity 53.5%; Score 250; DB 1; Length 155;
Matches 50; Conservative 11; Mismatches 27; Indels 2; Gaps 1;

DB 1 FLRIHDPGRVDGVRKSDPHIKILOAERGVSISIKGCANRYLAMKEDGRLASKCVTD 60

DB 37 FLRIHDPGRVDGVRKSDPHIKILOAERGVSISIKGCANRYLAMKEDGRLASKCVTD 96

DB 61 ECFEERLESNNYNTYRSKRYT--SWYVAL 88

DB 97 ECFEERLESNNYNTYRSKRYT--SWYVAL 126

RESULT 11

S04147
acidic fibroblast growth factor 1 - rat
N:Alternate names: heparin-binding growth factor 1
C:Species: Rattus norvegicus (Norway rat)
C:Date: 28-Feb-1990 #sequence_revision 28-Feb-1990 #text_change 16-Jul-1999
R:Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.
Nucleic Acids Res. 17, 2867, 1989
A:Title: The nucleotide sequence of rat heparin binding growth factor 1 (HBGF-1).
A:Reference number: S04147; MUID:89240051
A:Accession: S04147
A:Molecule type: mRNA
A:Residues: 1-155 <GOO>
A:Cross-references: EMBL:X14232; NID:956351; PIDN:CAA32448.1; PID:956352
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor; heparin binding

Query Match

Best Local Similarity 52.7%; Score 246; DB 2; Length 155;
Matches 49; Conservative 12; Mismatches 27; Indels 2; Gaps 1;

DB 1 FLRIHDPGRVDGVRKSDPHIKILOAERGVSISIKGCANRYLAMKEDGRLASKCVTD 60

DB 37 FLRIHDPGRVDGVRKSDPHIKILOAERGVSISIKGCANRYLAMKEDGRLASKCVTD 96

DB 61 ECFEERLESNNYNTYRSKRYT--SWYVAL 88

DB 97 ECFEERLESNNYNTYRSKRYT--SWYVAL 126

RESULT 12

D37360
acidic fibroblast growth factor - mouse
N:Alternate names: aFGF; FGF-1
C:Species: Mus musculus (house mouse)
C:Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
R:Hebert, J.M.; Basillio, C.; Goldfarb, M.; Haub, O.; Martin, G.R.
Dev. Biol. 138, 454-463, 1990
A:Title: Isolation of cDNAs encoding four mouse FGF family members and characteriza
A:Reference number: A37360; MUID:90201563
A:Accession: D37360
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-155 <HEB>
A:Cross-references: GB:M30641; NID:9193284; PIDN:AAA37618.1; PID:9309236
R:Medini, F.; Hackshaw, K.V.; Chiu, I.M.
Gene 179, 231-236, 1996
A:Title: Cloning and characterization of the mouse Fgf-1 gene.
A:Reference number: J05231; MUID:97128312
A:Accession: J05231
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-155 <MAD>
A:Cross-references: GB:U36456
C:Comment: This protein is an inducer of neovascularization in angiogenic disease in
C:Genetics:
A:Gene: Fgf-1
A:Introns: 57/1; 91/3
C:Superfamily: fibroblast growth factor

Query Match

Best Local Similarity 52.7%; Score 246; DB 2; Length 155;
Matches 49; Conservative 12; Mismatches 27; Indels 2; Gaps 1;

DB 1 FLRIHDPGRVDGVRKSDPHIKILOAERGVSISIKGCANRYLAMKEDGRLASKCVTD 60

DB 37 FLRIHDPGRVDGVRKSDPHIKILOAERGVSISIKGCANRYLAMKEDGRLASKCVTD 96

A:Title: Partial molecular characterization of endothelial cell mitogens from human brain
A:Reference number: A91364; MUID:86275260
A:Accession: A24301
A:Molecule type: protein
A:Residues: 16-30, 'X', 32-49 <GAD>
R:Gautschi-Sova, P.; Muller, T.; Böhlen, P.
Biochem. Biophys. Res. Commun. 140, 874-880, 1986
A:Title: Amino acid sequence of human acidic fibroblast growth factor.
A:Reference number: A26386; MUID:87048871
A:Accession: A26386
A:Molecule type: protein
A:Residues: 16-155 <GAR>
A:Experimental source: Brain
R:Chavan, A.J.; Haley, B.E.; Volklin, D.B.; Marfia, K.E.; Verticelli, A.M.; Bruner, M.W.
Biochemistry 33, 7193-7202, 1994
A:Title: Interaction of nucleotides with acidic fibroblast growth factor (FGF-1).
A:Reference number: A53639; MUID:94271773
A:Accession: A53639
A:Molecule type: protein
A:Residues: 16-30, 'X', 32-38, 73-75, 'X', 77-97, 'X', 99-101, 128-131, 'X', 133-140, 'X', 142-152 <G>
C:Genetics:
A:Gene: GDB:FCF1; FGFRA
A:Cross-references: GDB:119909; OMIM:131220
A:Map position: 5q31.3-5q33.2
A:Introns: 57/1, 91/3
C:Superfamily: fibroblast growth factor
C:Keywords: alternative splicing; growth factor; heparin binding
F:16-155/Product: fibroblast growth factor 1 #status experimental <MAT>
F:129/Binding site: carbohydrate (Asn) (covalent) #status absent

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Db      37  FLRLPGVTDGTRDRSDOHIOLOLSAEVSGEVIKSTETGOYIAMDTSGLLGGSQPSE 96
Oy      61  ECFEEERLESNNNTYRSRKY--SMYVAL 88
        || | ||| | : ||| | : : | |
Db      97  ECFLEERLENNNTYTSKRKKAKKMPVGL 126

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Search completed: June 2, 2002, 18:02:20
Job time: 498 sec

	Query Match	51.4%;	Score 240;	DB 1;	Length 155;
	Best Local Similarity	54.4%;	Pred. No. 1.3e-19;		
	Matches 49;	Conservative 11;	Mismatches 28;	Gaps 1;	
QY	1 FLRIHPDGRVGVREKSPHILQLQAARERGVSISKGCANRYLAKMEDGRLASKCYTD 60				
	::: :		:: :	:	
Dd	37 FLRIIPDGTVGGTRNSQHITQLQSASVEEVIKSTETGQYLMDRDTGLGSGQTPE 96				
QY	61 ECFEEERLESNNYNTYRSRKYT--SWYVAL 88				
Dd	97 ECFLFLELRLENHNNTIYSKKHAENKNWFGVL 126				
	:: : :		: :	:	

RESULT 15
 JH0476
 acidic fibroblast growth factor - pig (fragment)
 C:Species: Sus scrofa domestica (domestic pig)
 C:Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 16-Jul-1999
 C:Accession: JH0476; S20072
 R:Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W.
 Biochem. Biophys. Res. Commun. 180, 853-859, 1991
 A>Title: Amplification and sequencing of mRNA encoding acidic fibroblast growth factor
 A:Reference number: JH0476; MUID:92062117
 A:Accession: JH0476
 A:Molecule type: mRNA
 A:Residues: 1-152 <SCH>
 A:Cross-References: EMBL:X60317; NID:g1873; PIDN:CAA42869.1; PID:g1874
 A:Experimental source: heart
 A:Note: The hydrophobic core residues are packed around the internal symmetry axis
 C:Comment: This protein belongs to the fibroblast growth factor family.
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor; heparin binding
 F:22-28/Region: nuclear location signal
 F:133/Binding site:heparin (Lys) status predicted

Query Match 50.7% Score 237; DB 2; Length 152;
 Best Local Similarity 53.3% Pred. No. 2.8e-19;
 Matches 48; Conservative 12; Mismatches 28; Indels 2; Gaps 1;
 QY 1 FLRIHPDGRVGVREKSPHRIKIQDAEERGVSIVKGCANRYTAMKEDGRLLASKCYTD 60
 |||| ||| ||| :::|||:|||| || | || :|||| | | |:::

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Db      37  FLRLPGYVDCYRDRSDOHIOQLSAESVGEVYIKSTETGOYLANDTSGILYGSQT PSE 96
OY      61  ECFFEEPLESNMYNMYRSRKYT--SMYVAL 88
        || ||||| :||| | :| |
Db      97  ECLFLERLEENHNYNTYSKRHAENKMFVGL 126

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Search completed: June 2, 2002, 18:02:20
Job time: 498 sec

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      QY      1 FLRIHPDGKVDSDVREKSDPHIKQLQDAERGVYSIGVCANRYIAKMKEDGRILASKCVTD 60
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      Query Match          50.7%; Score 237; DB 2; Length 152;
      Best Local Similarity 53.3%; Pred. No. 2,8e-19;
      Matches 48; Conservative 12; Mismatches 28; Indels 2; Gaps 1;

      C:Species: Sus scrofa domestica (domestic pig)
      C:Date: 31-Mar-1992 #sequence_rev1sion 31-Mar-1992 #ext_change 16-Jul-1999
      C:Accession: JH0476, S20072
      R:Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W.
      Biochem. Biophys. Res. Commun. 180, 853-859, 1991
      A>Title: Amplification and sequencing of mRNA encoding acidic fibroblast growth factor
      A:Reference number: JH0476; MUID:92062117
      A:Accession: JH0476
      A:Molecule type: mRNA
      A:Residues: 1-152 <SCH>
      A:Cross-References: EMBL:X60317; NID:g1873; PIDN:CAA2869.1; PID:g1874
      A:Experimental source: heart
      A:Note: the hydrophobic core residues are packed around the internal symmetry axis
      C:Comment: This protein belongs to the fibroblast growth factor family.
      C:Superfamily: fibroblast growth factor
      C:Keywords: growth factor; heparin binding
      F:22-28/Region: nuclear location signal
      F:133/Binding site: heparin (Lys) #status predicted
  
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GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:01:37 ; Search time 28.4 Seconds
(without alignments)
75.685 Million cell updates/sec

Title: US-09-642-277a-3

Perfect score: 467
Sequence: 1 FLRIHPDGRVDGVRKESDPH.....ESNNNTYRSKRTSMYVAL 88

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 231628 segs, 24425594 residues

Total number of hits satisfying chosen parameters: 231628

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%
Listing first 45 summaries

Database: Issued_Patents_AA:*

1: /cgn2_6/prodata/2/1aa/5A_COMB.pep:.*
2: /cgn2_6/prodata/2/1aa/5B_COMB.pep:.*
3: /cgn2_6/prodata/2/1aa/5A_COMB.pep:.*
4: /cgn2_6/prodata/2/1aa/5B_COMB.pep:.*
5: /cgn2_6/prodata/2/1aa/5A_COMB.pep:.*
6: /cgn2_6/prodata/2/1aa/5B_COMB.pep:.*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	467	100.0	132	1	US-08-100-744-4
2	467	100.0	132	1	US-08-284-784-4
3	467	100.0	132	2	US-08-854-811-4
4	467	100.0	140	5	PCT-US90-06962-1
5	467	100.0	146	2	US-08-231-894A-11
6	467	100.0	146	6	5464943-6
7	467	100.0	146	6	5464943-6
8	467	100.0	147	6	5175147-6
9	467	100.0	150	1	US-08-441-629-8
10	467	100.0	150	1	US-08-776-207-8
11	467	100.0	150	5	PCT-US95-09172-8
12	467	100.0	153	3	US-08-325-186-2
13	467	100.0	154	2	US-08-438-439C-24
14	467	100.0	154	3	US-08-325-186-1
15	467	100.0	154	5	PCT-US91-02186-6
16	467	100.0	155	1	US-07-959-369-6
17	467	100.0	155	1	US-07-959-369-7
18	467	100.0	155	1	US-08-023-757-2
19	467	100.0	155	1	US-07-842-177A-1
20	467	100.0	155	1	US-08-177-502-2
21	467	100.0	155	1	US-08-439-725A-10
22	467	100.0	155	1	US-08-325-632-1
23	467	100.0	155	1	US-08-462-169B-10
24	467	100.0	155	2	US-08-867-471-10
25	467	100.0	155	2	US-08-438-439C-14
26	467	100.0	155	2	US-08-951-822-28
27	467	100.0	155	3	US-09-103-079-10

28	467	100.0	155	3	US-08-705-245-6	Sequence 6, Appl
29	467	100.0	155	3	US-08-897-924A-25	Sequence 25, Appl
30	467	100.0	155	3	US-08-718-904-11	Sequence 11, Appl
31	467	100.0	155	3	US-09-023-082A-17	Sequence 17, Appl
32	467	100.0	155	3	US-09-030-613-3	Sequence 3, Appl
33	467	100.0	155	4	US-09-098-628-2	Sequence 2, Appl
34	467	100.0	155	4	US-09-451-905-3	Sequence 3, Appl
35	467	100.0	155	4	US-09-368-951-28	Sequence 28, Appl
36	467	100.0	155	5	PCT-US91-02186-2	Sequence 2, Appl
37	467	100.0	155	5	5514566-8	Patent No. 5514566
38	467	100.0	158	2	US-08-599-895-3	Sequence 3, Appl
39	467	100.0	158	3	US-09-211-290-3	Sequence 3, Appl
40	467	100.0	158	3	US-09-322-676-3	Sequence 3, Appl
41	467	100.0	158	4	US-09-220-077C-2	Sequence 2, Appl
42	467	100.0	158	4	US-09-466-036A-3	Sequence 3, Appl
43	467	100.0	210	1	US-08-464-590A-14	Sequence 14, Appl
44	467	100.0	210	2	US-08-207-412B-9	Sequence 9, Appl
45	467	100.0	210	3	US-09-093-585-14	Sequence 14, Appl

ALIGNMENTS

RESULT 1
US-08-100-744-4
; Sequence 4, Application US/08100744
; Patent No. 5563046
GENERAL INFORMATION:
APPLICANT: MASCARENHAS, DESMOND
APPLICANT: ZHANG, SUNNY
APPLICANT: OLSON, PAMELA
APPLICANT: OLSEN, DAVID
APPLICANT: CARRILLO, PEDRO A.
TITLE OF INVENTION: POLYPEPTIDE FUSIONS TO
TITLE OF INVENTION: INTERLEUKIN-1-LIKE POLYPEPTIDES
NUMBER OF SEQUENCES: 12
CORRESPONDENCE ADDRESS:
ADDRESSEE: MORRISON & FOERSTER
STREET: 755 Page Mill Road
CITY: Palo Alto
STATE: California
COUNTRY: USA
ZIP: 94304-1018
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/100,744
FILING DATE: 02-AUG-1993
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: LUTHER, BARBARA J.
REGISTRATION NUMBER: 33,954
REFERENCE/DOCKET NUMBER: 22095-20275.00
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 813-5600
TELEFAX: (415) 494-0792
TELEX: 706141
INFORMATION FOR SEQ. ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 132 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-100-744-4

Query Match 100.0%; Score 467; DB 1; Length 132;
Best Local Similarity 100.0%; Pred. No. 1.2e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGYREKSDPHIKILOAERGVSINQVCANRYLAKMEDGRLASKCVTD 60
|||||
Db 17 FLRIHPDGRVDGYREKSDPHIKILOAERGVSINQVCANRYLAKMEDGRLASKCVTD 76
OY 61 ECFEERLESNNNTYRSKRYTSMYAL 88
|||||
Db 77 ECFEERLESNNNTYRSKRYTSMYAL 104

RESULT 2

US-08-284-784-4
; Sequence 4, Application US/08284784
; Patent No. 5629172
; GENERAL INFORMATION:
; APPLICANT: MASCARENHAS, DESMOND
; APPLICANT: ZHANG, YANG
; APPLICANT: OLSON, PAMELA S.
; APPLICANT: OLSEN, DAVID R.
; APPLICANT: CARRILLO, PEDRO A.
; TITLE OF INVENTION: EXPRESSION OF FUSION POLYPEPTIDES
; TITLE OF INVENTION: TRANSPORTED OUT OF THE CYTOPLASM WITHOUT LEADER SEQUENCES
; NUMBER OF SEQUENCES: 44
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: MORRISON & FOERSTER
; STREET: 755 Page Mill Road
; CITY: Palo Alto
; STATE: California
; COUNTRY: USA
; ZIP: 94304-1018

; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/284,784
; FILING DATE: 02-AUG-1994
; CLASSIFICATION: 530
; ATTORNEY/AGENT INFORMATION:
; NAME: PARK, FREDIE K.
; REGISTRATION NUMBER: 35,636
; REFERENCE/DOCKET NUMBER: 22095-20275.20
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 813-5600
; TELEFAX: (415) 494-0792
; TELEX: 706141
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 132 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; US-08-284-784-4

Query Match 100.0%; Score 467; DB 1; Length 132;
Best Local Similarity 100.0%; Pred No. 1.2e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGYREKSDPHIKILOAERGVSINQVCANRYLAKMEDGRLASKCVTD 60
|||||
Db 17 FLRIHPDGRVDGYREKSDPHIKILOAERGVSINQVCANRYLAKMEDGRLASKCVTD 76
OY 61 ECFEERLESNNNTYRSKRYTSMYAL 88
|||||
Db 77 ECFEERLESNNNTYRSKRYTSMYAL 104

RESULT 3

US-08-854-811-4
; Sequence 4, Application US/08854811
; Patent No. 5914254
; GENERAL INFORMATION:

; APPLICANT: Mascarenhas, Desmond
; APPLICANT: Zhang, Yang
; APPLICANT: Olson, Pamela S.
; APPLICANT: OLSEN, DAVID R.
; APPLICANT: Cohen, Pedro A.
; TITLE OF INVENTION: EXPRESSION OF FUSION POLYPEPTIDES
; TITLE OF INVENTION: TRANSPORTED OUT OF THE CYTOPLASM WITHOUT LEADER
; NUMBER OF SEQUENCES: 49
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: MORRISON & FOERSTER
; STREET: 755 PAGE MILL ROAD
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94304-1018

; COMPUTER READABLE FORM:
; MEDIUM TYPE: diskette
; COMPUTER: IBM compatible
; OPERATING SYSTEM: Windows
; SOFTWARE: PASTSEQ for Windows Version 2.0b
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/854,811
; FILING DATE: 12-MAY-1997
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/284,784
; FILING DATE: 02-AUG-1994
; APPLICATION NUMBER: 08/100,744
; FILING DATE: 02-AUG-1993
; ATTORNEY/AGENT INFORMATION:
; NAME: Buifinger, Nicholas S
; REGISTRATION NUMBER: 39,124
; REFERENCE/DOCKET NUMBER: 22095-20275.21
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650-813-5600
; TELEFAX: 650-494-0792
; TELEX: 706141
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 132 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; US-08-854-811-4

Query Match 100.0%; Score 467; DB 2; Length 132;
Best Local Similarity 100.0%; Pred No. 1.2e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGYREKSDPHIKILOAERGVSINQVCANRYLAKMEDGRLASKCVTD 60
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Db 17 FLRIHPDGRVDGYREKSDPHIKILOAERGVSINQVCANRYLAKMEDGRLASKCVTD 76
OY 61 ECFEERLESNNNTYRSKRYTSMYAL 88
|||||
Db 77 ECFEERLESNNNTYRSKRYTSMYAL 104

RESULT 4
PCT-US90-06962-1
; Sequence 1, Application PC/TUS9006962

; GENERAL INFORMATION:
; APPLICANT: Baird, J. A.
; APPLICANT: Hajjar, David P.
; TITLE OF INVENTION: Treatment of HSV
; NUMBER OF SEQUENCES: 2
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Fitch, Even, Tabin & Flannery
; STREET: 135 South LaSalle Street, Suite 900
; CITY: Chicago
; STATE: Illinois

COUNTRY: USA
ZIP: 60603
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.24
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US90/06962
FILING DATE: 19901129
CLASSIFICATION: Au 186/C1 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/443,939
FILING DATE: 30-NOV-1989
ATTORNEY/AGENT INFORMATION:
NAME: Schumann, James J.
REGISTRATION NUMBER: 20856
REFERENCE/DOCKET NUMBER: 50742
TELECOMMUNICATION INFORMATION:
TELEPHONE: (619)552-1311
TELEFAX: (619)552-0095
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 157 amino acids
TYPE: AMINO ACID
TOPOLOGY: linear
MOLECULE TYPE: protein
PCT-US90-06962-1

Query Match 100.0%; Score 467; DB 5; Length 140;
Best Local Similarity 100.0%; Pred. No. 1.3e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHDPGRVGVREKSDPHIKILOAEERGVSIGVCANRYLAKEDGRLLASRCYTD 60
DB 42 FLRIHDPGRVGVREKSDPHIKILOAEERGVSIGVCANRYLAKEDGRLLASRCYTD 101
QY 61 ECFEERLESNNYNTYRSRKYTSWYAL 88
DB 102 ECFEERLESNNYNTYRSRKYTSWYAL 129

RESULT 5
US-08-231-894A-11
Sequence 11, Application US/08231894A
Patent No. 5851990
GENERAL INFORMATION:
APPLICANT: FUJISHIMA, AKIRA
APPLICANT: FUKUDA, TSUNEHIRO
TITLE OF INVENTION: BPGF PROTEIN AND ITS PRODUCTION
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS
STREET: 130 WATER STREET
CITY: BOSTON
STATE: MASSACHUSETTS
COUNTRY: US
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSeq Version 1.5
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/231,894A
FILING DATE: 22-APR-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/873907
FILING DATE: 24-APR-1992
CLASSIFICATION: 435

PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 097655-1991
FILING DATE: 26-APR-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 066381-1992
FILING DATE: 24-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: RESNICK, DAVID S.
REGISTRATION NUMBER: 34235
REFERENCE/DOCKET NUMBER: 41769-FWC
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 523-3400
TELEFAX: (617) 523-6440
INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
LENGTH: 146 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: Internal
ORIGINAL SOURCE:
US-08-231-894A-11

Query Match 100.0%; Score 467; DB 2; Length 146;
Best Local Similarity 100.0%; Pred. No. 1.4e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHDPGRVGVREKSDPHIKILOAEERGVSIGVCANRYLAKEDGRLLASRCYTD 60
DB 31 FLRIHDPGRVGVREKSDPHIKILOAEERGVSIGVCANRYLAKEDGRLLASRCYTD 90
QY 61 ECFEERLESNNYNTYRSRKYTSWYAL 88
DB 91 ECFEERLESNNYNTYRSRKYTSWYAL 118

RESULT 6
5464943-6
Patent No. 5464943
APPLICANT: SENDO, MASAHARU; SASADA, REIKO; IGARASHI, KOICHI
TITLE OF INVENTION: DNA ENCODING GLYCOSYLATED BGF AND
PRODUCTION THEREOF
NUMBER OF SEQUENCES: 42
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/275,635
FILING DATE: 15-JUL-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 7,089
FILING DATE: 19-JAN-1993
APPLICATION NUMBER: 511,469
FILING DATE: 20-APR-1990
SEQ ID NO: 6
LENGTH: 146
5464943-6

Query Match 100.0%; Score 467; DB 6; Length 146;
Best Local Similarity 100.0%; Pred. No. 1.4e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHDPGRVGVREKSDPHIKILOAEERGVSIGVCANRYLAKEDGRLLASRCYTD 60
DB 31 FLRIHDPGRVGVREKSDPHIKILOAEERGVSIGVCANRYLAKEDGRLLASRCYTD 90
QY 61 ECFEERLESNNYNTYRSRKYTSWYAL 88
DB 91 ECFEERLESNNYNTYRSRKYTSWYAL 118

Query Match 100.0%; Score 467; DB 3; Length 150;
Best Local Similarity 100.0%; Pred. No. 1.4e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVGVREKSDPHIKILOAERGVSISIKVCANRYLAMKEDGRLLASKCVTD 60
|||||
DB 40 FLRIHPDGRVGVREKSDPHIKILOAERGVSISIKVCANRYLAMKEDGRLLASKCVTD 99
OY 61 ECFEERLESNNYNTYRSRKYTSWYAL 88
|||||
DB 100 ECFEERLESNNYNTYRSRKYTSWYAL 127

RESULT 11
PCT-US95-09172-8

Sequence 8, Application PC/TUS9509172
GENERAL INFORMATION:
APPLICANT: Kirschner, Marc W.
APPLICANT: Kinoshita, Noriyuki
TITLE OF INVENTION: RECEPTOR-LIGAND ASSAY
NUMBER OF SEQUENCES: 17
CORRESPONDENCE ADDRESS:
ADDRESSEE: Hamilton, Brook, Smith & Reynolds, P.C.
STREET: Two Militia Drive
CITY: Lexington
STATE: Massachusetts
COUNTRY: USA
ZIP: 02173
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/09172
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/279,217
FILING DATE: 22-JUL-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/441,629
FILING DATE: 15-MAY-1995
ATTORNEY/AGENT INFORMATION:
NAME: Granahan, Patricia
REGISTRATION NUMBER: 32,227
REFERENCE/DOCKET NUMBER: H095-01A PCT
TELEPHONE: (617) 861-9540
TELEFAX: (617) 861-6240
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
LENGTH: 150 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
PCT-US95-09172-8

Query Match 100.0%; Score 467; DB 5; Length 150;
Best Local Similarity 100.0%; Pred. No. 1.4e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVGVREKSDPHIKILOAERGVSISIKVCANRYLAMKEDGRLLASKCVTD 60
|||||
DB 40 FLRIHPDGRVGVREKSDPHIKILOAERGVSISIKVCANRYLAMKEDGRLLASKCVTD 99
OY 61 ECFEERLESNNYNTYRSRKYTSWYAL 88
|||||
DB 100 ECFEERLESNNYNTYRSRKYTSWYAL 127

RESULT 12
US-08-325-186-2
Sequence 2, Application US/08325186
Patent No. 6046164

GENERAL INFORMATION:
APPLICANT: ASANO, Taiji
APPLICANT: SUGIMOTO, Hajime
APPLICANT: TERASHIMA, Akio
APPLICANT: NAKANO, Yoshiko
APPLICANT: AMAKAWA, Masahiro
APPLICANT: SAGA, Katunasa
TITLE OF INVENTION: THERAPEUTIC AGENT FOR DISEASES OF PERIODONTAL
NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
ADDRESSEE: Armstrong, Westernman, Hattori, McElend &
STREET: 1725 K St. N.W. Suite 1000
CITY: Washington
STATE: D.C.
COUNTRY: U.S.A.
ZIP: 20006
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.5 in, 1.44MB
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0
SOFTWARE: ASCII
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/325,186
FILING DATE: 24-MAY-95
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP93/01211
FILING DATE: 25-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: Stevens-Smith, Theresa M.
REGISTRATION NUMBER: 36,281
REFERENCE/DOCKET NUMBER: 950319
TELEPHONE: (202) 659-2930
TELEFAX: (202) 887-0357
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 153
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-325-186-2

Query Match 100.0%; Score 467; DB 3; Length 153;
Best Local Similarity 100.0%; Pred. No. 1.4e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVGVREKSDPHIKILOAERGVSISIKVCANRYLAMKEDGRLLASKCVTD 60
|||||
DB 38 FLRIHPDGRVGVREKSDPHIKILOAERGVSISIKVCANRYLAMKEDGRLLASKCVTD 97
OY 61 ECFEERLESNNYNTYRSRKYTSWYAL 88
|||||
DB 98 ECFEERLESNNYNTYRSRKYTSWYAL 125

RESULT 13
US-08-438-439C-24
Sequence 24, Application US/08438439C
Patent No. 5876967
GENERAL INFORMATION:
APPLICANT: Nathans, Jeremy
APPLICANT: Smallwood, Phillip M.

APPLICANT: Macke, Jennifer P.
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS
TITLE OF INVENTION: FACTOR-2 AND METHODS OF USE
NUMBER OF SEQUENCES: 25
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 4225 Executive Square, Suite 1400
CITY: La Jolla
STATE: CA
COUNTRY: USA
ZIP: 92037
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/438,439C
FILING DATE: May 12, 1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Halle, Lisa A.
REGISTRATION NUMBER: 38,347
REFERENCE/DOCKET NUMBER: 07265/046001
TELECOMMUNICATION INFORMATION:
TELEPHONE: 619/678-5070
TELEFAX: 619/678-5099
INFORMATION FOR SEQ ID NO: 24:
SEQUENCE CHARACTERISTICS:
LENGTH: 154 amino acids
TYPE: amino acid
STRANDEDNESS: not relevant
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-438-439C-24

Query Match 100.0%; Score 467; DB 2; Length 154;
Best Local Similarity 100.0%; Pred. No. 1.5e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPGVDGVREKSDPHIKILOAEERGVSIKVCANRYLAMKEDGRLASKCVTD 60
DB 39 FLRIHPGVDGVREKSDPHIKILOAEERGVSIKVCANRYLAMKEDGRLASKCVTD 98

QY 61 ECFEERLESNNYTSRKRTSYVAL 88
DB 99 ECFEERLESNNYTSRKRTSYVAL 126

RESULT 14
US-08-325-186-1
Sequence 1, Application US/08325186
Patent No. 6046164
GENERAL INFORMATION:
APPLICANT: ASANO, Taiji
APPLICANT: SUGIMOTO, Hajime
APPLICANT: TERASHIMA, Akio
APPLICANT: NAKANO, Yoshiko
APPLICANT: AKAHAMA, Masahiro
APPLICANT: SAGA, Katumasa
TITLE OF INVENTION: THERAPEUTIC AGENT FOR DISEASES OF PERIODONTAL
TITLE OF INVENTION: TISSUE
NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
ADDRESSEE: Armstrong, Westernman, Hattori, Mclelland &
ADDRESS: Naughton
STREET: 1725 K St. N.W. Suite 1000
CITY: Washington
STATE: D.C.
COUNTRY: U.S.A.
ZIP: 20006
COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 3.5 in, 1.44MB
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0
SOFTWARE: ASCII
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/325,186
FILING DATE: 24-MAY-95
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP93/01211
FILING DATE: 25-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: Stevens-Smith, Theresa M.
REGISTRATION NUMBER: 36,281
REFERENCE/DOCKET NUMBER: 950319
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 659-2930
TELEFAX: (202) 887-0357
TELEX: 440142
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 154
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-325-186-1

Query Match 100.0%; Score 467; DB 3; Length 154;
Best Local Similarity 100.0%; Pred. No. 1.5e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPGVDGVREKSDPHIKILOAEERGVSIKVCANRYLAMKEDGRLASKCVTD 60
DB 39 FLRIHPGVDGVREKSDPHIKILOAEERGVSIKVCANRYLAMKEDGRLASKCVTD 98

QY 61 ECFEERLESNNYTSRKRTSYVAL 88
DB 99 ECFEERLESNNYTSRKRTSYVAL 126

RESULT 15
PCT-US91-02186-6
Sequence 6, Application PC/TUS9102186
GENERAL INFORMATION:
APPLICANT: California Biotechnology Inc.
APPLICANT: Inventors: Thompson, Stewart A.
APPLICANT: Abraham, Judith A.
TITLE OF INVENTION: High Level Expression of Basic
TITLE OF INVENTION: Fibroblast Growth Factor Having a Homogeneous
TITLE OF INVENTION: N-terminus
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Irell & Manella
STREET: 545 Middlefield Road, Suite 200
CITY: Menlo Park
STATE: California
COUNTRY: USA
ZIP: 94025-3471
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US91/02186
FILING DATE: 19910702
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Murashige, Kate H.
REGISTRATION NUMBER: 29,959
REFERENCE/DOCKET NUMBER: 1900-0275.41
TELECOMMUNICATION INFORMATION:

TELEPHONE: 415-327-7250
 INFORMATION FOR SEQ ID NO: 6:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 154 amino acids
 TYPE: AMINO ACID
 TOPOLOGY: linear
 MOLECULE TYPE: protein
 PCT-US91-02186-6

Query Match 100.0%; Score 467; DB 5; Length 154;
 Best Local Similarity 100.0%; Pred. No. 1.5e-52;
 Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDGVREKSPHIKIQLAERGVSIKGVCANRYLAMKEDGRLLASKCVTD 60
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 39 FLRIHPDGRVDGVREKSPHIKIQLAERGVSIKGVCANRYLAMKEDGRLLASKCVTD 98
 QY 61 ECFEERLESNNYNTYRSRKYTSWYVAL 88
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 99 ECFEERLESNNYNTYRSRKYTSWYVAL 126

Search completed: June 2, 2002, 18:01:37
 Job time: 455 sec

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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:03:40 ; Search time 73.59 Seconds

(without alignments)
132,824 Million cell updates/sec

Title: US-09-642-277A-3

Perfect score: 467
Sequence: 1 FLRIHPDGVGVREKSDPH.....ESNNNTYRSKRYTMYVAL 88

Scoring table: BLOSUM62
Gapop 10.0, Gapext 0.5

Searched: 747574 seqs, 111073796 residues

Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database:

A.Geneseq_032802.*
1: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1980.DAT:*
2: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1981.DAT:*
3: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1982.DAT:*
4: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1983.DAT:*
5: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1984.DAT:*
6: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1985.DAT:*
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19: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1998.DAT:*
20: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1999.DAT:*
21: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA2000.DAT:*
22: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA2001.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	467	100.0	88	22 AAB60697	Human basic fibrob
2	467	100.0	123	10 AAP90561	rhbFGF mutein C123
3	467	100.0	129	9 AAP81940	Human basic fibrob
4	467	100.0	132	20 AAP90562	rhbFGF mutein C129
5	467	100.0	132	20 AAV17995	Human basic fibrob
6	467	100.0	134	9 AAP81932	Human basic fibrob
7	467	100.0	138	10 AAP90563	rhbFGF mutein C137
8	467	100.0	139	9 AAP81937	Human basic fibrob
9	467	100.0	146	9 AAP82579	Human basic fibrob
10	467	100.0	146	13 AAR25423	bFGF derivative.
11	467	100.0	146	14 AAR34494	Human basic fibrob

12	467	100.0	146	15 AAR65925	Fibroblast growth
13	467	100.0	146	15 AAR65926	Fibroblast growth
14	467	100.0	146	21 AAY87847	Human FGF-2 protei
15	467	100.0	146	22 AAE11974	Human fibroblast g
16	467	100.0	146	22 AAG62612	Human basic insull
17	467	100.0	147	9 AAP81916	Human basic fibrob
18	467	100.0	147	9 AAP81931	Human basic fibrob
19	467	100.0	148	13 AAR22233	rhbFGF truncated at
20	467	100.0	149	11 AAR03960	Human basic fibrob
21	467	100.0	153	16 AAR71414	Human basic fibrob
22	467	100.0	154	16 AAR71413	Human basic fibrob
23	467	100.0	154	17 AAP89473	Sequence of human
24	467	100.0	155	10 AAP94038	Human basic fibrob
25	467	100.0	155	10 AAP70301	Human basic fibrob
26	467	100.0	155	11 AAR03965	Human basic fibrob
27	467	100.0	155	13 AAR23960	Human basic fibrob
28	467	100.0	155	13 AAR22232	Human basic fibrob
29	467	100.0	155	14 AAR40159	rhbFGF truncated at
30	467	100.0	155	14 AAR40161	Human bFGF peptide
31	467	100.0	155	15 AAR53270	Human bFGF peptide
32	467	100.0	155	16 AAR80777	glu3,5 hbFGF. Hom
33	467	100.0	155	16 AAR70204	Fibroblast growth
34	467	100.0	155	16 AAR70823	Human bFGF. Homo
35	467	100.0	155	16 AAR70823	Human bFGF. Homo
36	467	100.0	155	18 AAM33338	Human fibronectin
37	467	100.0	155	18 AAM33338	Human fibronectin
38	467	100.0	155	19 AAY05456	Biologically activ
39	467	100.0	155	19 AAM75712	Fibronectin recept
40	467	100.0	155	19 AAM71403	K134T mutant of fl
41	467	100.0	155	19 AAM71405	K134T mutant of fl
42	467	100.0	155	19 AAM71405	M151R mutant of fl
43	467	100.0	155	19 AAM71406	S152V/S152R mutant
44	467	100.0	155	19 AAM71387	Y33A/Y33L mutant o
45	467	100.0	155	19 AAM71401	K128D/K128P mutant

ALIGNMENTS

RESULT 1	AAB60697	standard; protein; 88 AA.
XX	XX	XX
AC	AAB60697:	
XX	XX	XX
DT	22-MAY-2001	(first entry)
XX	XX	XX
DE	Human basic fibroblast growth factor (bFGF) 88 residue form, SEQ ID NO:3.	
XX	XX	XX
KW	Human bFGF; basic fibroblast growth factor; 88 residue form;	
KW	central nervous system; CNS damage; brain damage; neural stimulant;	
KW	stem cell; conjoint administration; therapy; recovery;	
KW	ischemia; hypoxia; trauma; neurodegenerative disorder;	
KW	infectious disease; cancer; autoimmune disease; metabolic disorder;	
KW	stroke; encephalomyelitis; Alzheimer's disease; Huntington's disease;	
KW	Parkinson's disease; Creutzfeldt-Jakob disease; multiple sclerosis;	
KW	amyotrophic lateral sclerosis.	
XX	XX	XX
OS	Homo sapiens;	
PN	WO200112236-A2.	
XX	XX	XX
PD	22-FEB-2001.	
XX	XX	XX
PF	18-AUG-2000; 2000MO-US22843.	
XX	XX	XX
PR	18-AUG-1999; 99US-0149561.	
XX	XX	XX
PA	(GENO) GEN HOSPITAL CORP.	
XX	XX	XX
PI	Finkenstein SP, Snyder EY;	
XX	XX	XX
DR	WPI: 2001-211142/21.	

(TAKE) TAKEDA CHEMICAL INDUSTRIES LTD

PT activity of capillary endothelial cells and angiogenic activity.

PS Disclosure; 1pp; English

XX Using plasmid pTR856, E.coli MM294 was transformed, whereby the
 CC strain E.coli MM294/pTR856 was obtained, which harbors the plasmid
 CC pTR856 expressing the mutin represented here. The amino acid
 CC sequence from Lys130 to Ser147 has been deleted.
 CC The mutin has high stability and is low in toxicity.
 CC It can be used as a healing accelerator for e.g. burns, wounds
 CC or postoperative tissues or as a therapeutic drug based on its
 CC angiogenic action for e.g. thrombosis or arteriosclerosis. It can also
 CC be used as a reagent for acceleration of cell cultivation. A mutin
 CC where at least one constituent cysteine is replaced by serine is
 CC preferred because the mutin is highly stable and intermolecular bridges
 CC and linkages are reduced or eliminated.
 CC See also AAN91971-97.
 CC
 XX Sequence 129 AA;

Query Match 100.0%; Score 467; DB 9; Length 129;
 Best Local Similarity 100.0%; Pred. No. 2.1e-48;
 Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGVGVREKSDPHIKIQQAERGVSISIKVCANRYLAMKEDGRLLASKCYTD 60
 DB 32 FLRIHPDGVGVREKSDPHIKIQQAERGVSISIKVCANRYLAMKEDGRLLASKCYTD 60
 QY 61 ECFPERLESNNNTYRSRKYSWYVAL 88
 DB 92 ECFPERLESNNNTYRSRKYSWYVAL 119

RESULT 4

AAP90562
 ID AAP90562 standard; peptide; 129 AA.

AC AAP90562;

DT 26-OCT-1989 (first entry)

DE rhbFGF mutin C129.

KM Basic fibroblast growth factor; mutin C129.

PN EPJ26907-A.

PD 09-AUG-1989.

PF 24-JAN-1989; 89EP-0101162.

PR 26-JAN-1988; 88JP-0016260.

PR 19-AUG-1988; 88JP-0206968.

PR 20-SEP-1988; 88JP-0235842.

PA (TAKE) TAKEDA CHEMICAL INDUSTRIES LTD.

PI Senoo M, Sasada R, Kurokawa T, Igarashi K;

PT WPI; 1989-228965/32.

XX Mutins of basic fibroblast growth factor - lacking carboxy terminal
 PT amino acids, having growth promoting and angiogenic activities.
 XX
 XX Disclosure; claim 8, page 22; Fig. 8; 41pp; english.

XX rhbFGF mutin C129 (encoded by AAN90406) lacks 18 C-terminal amino acids
 CC of basic fibroblast growth factor. It has high fibroblast growth
 CC promoting, vasendothelial cell growth promoting, and angiogenic
 CC activities, and has high stability and low toxicity. It is used to
 CC accelerate healing of, eg burns, wounds and postoperative tissues, as a
 CC drug for thrombosis or arteriosclerosis, or as a reagent to accelerate
 CC cell cultivation. Cys 70 and Cys 88 may be replaced by Ser (see
 CC AAP90564).

SO Sequence 129 AA;

Query Match 100.0%; Score 467; DB 10; Length 129;
 Best Local Similarity 100.0%; Pred. No. 2.1e-48;
 Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGVGVREKSDPHIKIQQAERGVSISIKVCANRYLAMKEDGRLLASKCYTD 60
 DB 32 FLRIHPDGVGVREKSDPHIKIQQAERGVSISIKVCANRYLAMKEDGRLLASKCYTD 60
 QY 61 ECFPERLESNNNTYRSRKYSWYVAL 88
 DB 92 ECFPERLESNNNTYRSRKYSWYVAL 119

RESULT 5

AAI17995
 ID AAI17995 standard; protein; 132 AA.

AC AAI17995;

DT 16-AUG-1999 (first entry)

DE Human basic fibroblast growth factor (FGF).

KM Fusion protein; leader peptide; fermentation; interleukin-1; IL-1;
 KW leaderless fusion protein; fibroblast growth factor; FGF.

OS Homo sapiens.

PN US5914254-A.

PD 22-JUN-1999.

PF 12-MAY-1997; 97US-0854811.

PR 12-MAY-1997; 97US-0854811.

PR 02-AUG-1993; 93US-0100744.

PR 02-AUG-1994; 94US-0284784.

PA (CEL-) CELTRIX PHARM INC.

PI Cohen PA, Mascarenhas D, Nguyen KB, Olsen DR, Olson PS;

PT Zhang Y;

XX WPI; 1999-370500/31.

XX Recombinant production of fusion proteins

PS Example 2; Fig 1; 80pp; English.

XX The invention relates to recombinant production of fusion proteins using
 CC fusion partners that lack leader sequences. The nucleic acids, vectors,
 CC host cells and methods disclosed may be used to recombinantly produce
 CC large quantities of fusion proteins, in which the fusion partner lacks a
 CC leader sequence, via fermentation culture according to standard
 CC recombinant DNA methodologies. The polypeptide of interest is cleaved
 CC away from the rest of the fusion protein by proteolytic digestion. A
 CC variety of polypeptides may be produced in this manner including
 CC enzymes, growth factors, single chain antibodies DNA-/RNA- binding
 CC proteins, membrane receptors, mutant IgFBP-3s and fragments of them.
 CC Additionally, the invention may be used in the screening of libraries of
 CC random polypeptides by assays for their biological function. When fused
 CC to an interleukin-1-like (IL-1-like) polypeptide, the random peptides
 CC accumulate in a protected cellular compartment in a soluble active form.
 CC Leaderless fusion proteins may be produced in a wide variety of host
 CC cells (e.g. Escherichia coli), in a soluble, active and easily
 CC recoverable form at temperature at or close to the physiological optima
 CC for host cell growth. A wide variety of polypeptides, including those
 CC that are otherwise unstable, or insoluble may be expressed as fusions
 CC with the IL-1-like polypeptides or other leader deleted translocating
 CC peptides. Sequences AAI17992-996 represent five members of the IL-1-like

CC protein family.
XX
SQ Sequence 132 AA;

Query Match 100.0%; Score 467; DB 20; Length 132;
Best Local Similarity 100.0%; Pred. No. 2.2e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGVGVREKSPHIKIQLOAEERGVSISKGCANRYLAMKEDGRLLASKCVTD 60
Db 17 flrlhpdgvgvrvksphiklqlgaeergvsvikgvcanylamkedgrllaskcvtd 76
QY 61 ECFEERLESNNYNTYRSKRYTSWYAL 88
Db 77 ecfflerlesnynltysrkytsyval 104

RESULT 6

AAP81932
ID AAP81932 standard; protein; 134 AA.

AC AAP81932;

DT 26-OCT-1990 (first entry)

DE Human basic fibroblast growth factor muteln M14 from phage M13-PN14.

KW Human basic fibroblast growth factor; human bFGF muteln M14;

KM growth promoting activity; growth stimulating activity; phage M13-PN14;

XX capillary endothelial cells; angiogenic activity.

OS Synthetic.

FT Key Location/Qualifiers

FT Misc-difference 3...3 /label="mutation_Pro-to_Met

PN EP281822-A.

PD 14-SEP-1988.

PF 20-FEB-1988; 88BP-0102491.

PR 24-FEB-1987; 87JP-0042218.

PA (TAKE) TAKEDA CHEMICAL IND KK.

PI Senoo M, Krokawa T, Igarashi K, Sasada R;

DR WPI; 1988-258580/37.

DR N-PDSB; N81989.

PT Muteln of basic fibroblast growth factor -

PT having fibroblast growth promoting activity, growth stimulating

PT activity of capillary endothelial cells and angiogenic activity.

PS Disclosure; 1pp; English.

XX Using plasmid pTB795, E.coli NM294 was transformed, whereby the

CC strain E.coli NM294/pTB795 was obtained, which (IFO 14700, FERM BP-1660)

CC harbors the plasmid pTB795 expressing the muteln represented here.

CC The amino acid sequence Pro2-Pro14 has been deleted.

CC It can be used as a healing accelerator for e.g. burns, wounds

CC or postoperative tissues or as a therapeutic drug based on its

CC angiogenic action for e.g. thrombosis or arteriosclerosis. It can also

CC be used as a reagent for acceleration of cell cultivation. A muteln

CC where at least one constituent cysteine is replaced by serine is

CC preferred because the muteln is highly stable and intermolecular bridges

CC and linkages are reduced or eliminated.

CC See also AAN81971-97.

XX
SQ Sequence 134 AA;

Query Match 100.0%; Score 467; DB 9; Length 134;
Best Local Similarity 100.0%; Pred. No. 2.2e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGVGVREKSPHIKIQLOAEERGVSISKGCANRYLAMKEDGRLLASKCVTD 60
Db 19 flrlhpdgvgvrvksphiklqlgaeergvsvikgvcanylamkedgrllaskcvtd 78
QY 61 ECFEERLESNNYNTYRSKRYTSWYAL 88
Db 79 ecfflerlesnynltysrkytsyval 106

RESULT 7

AAP90563
ID AAP90563 standard; protein; 138 AA.

AC AAP90563;

DT 26-OCT-1989 (first entry)

DE rhbFGF muteln C137.

KW Basic fibroblast growth factor; muteln C137.

KM EP326907-A.

XX PD 09-AUG-1989.

PF 24-JAN-1989; 89BP-0101162.

PR 26-JAN-1988; 88JP-0016260.

PR 19-AUG-1988; 88JP-0206968.

PR 20-SEP-1988; 88JP-0235842.

PA (TAKE) TAKEDA CHEMICAL INDUSTRIES LTD.

PI Senoo M, Sasada R, Kurokawa T, Igarashi K;

DR WPI; 1989-228965/32.

PT Mutelns of basic fibroblast growth factor - lacking carboxy terminal

PT amino acids, having growth promoting and angiogenic activities.

PS Disclosure; claim 9, page 22; Fig. 3; 41pp; english.

XX rhbFGF muteln C137 (encoded by AAN90407) lacks 9 C-terminal amino acids

CC of basic fibroblast growth factor. It has high fibroblast growth

CC promoting, vasodendothelial cell growth promoting, and angiogenic

CC activities, and has high stability and low toxicity. It is used to

CC accelerate healing of, eg burns, wounds and postoperative tissues, as a

CC drug for thrombosis or arteriosclerosis, or as a reagent to accelerate

CC cell cultivation. Cys 70 and Cys 88 may be replaced by Ser, ans Ile 138

CC is replaced by Ser.

XX Sequence 138 AA;

QY 1 FLRIHPDGVGVREKSPHIKIQLOAEERGVSISKGCANRYLAMKEDGRLLASKCVTD 60

Db 32 flrlhpdgvgvrvksphiklqlgaeergvsvikgvcanylamkedgrllaskcvtd 91

QY 61 ECFEERLESNNYNTYRSKRYTSWYAL 88

Db 92 ecfflerlesnynltysrkytsyval 119

KW Human; basic fibroblast growth factor; recombinant; wound healing;
KW revascularise; regenerate; neural tissue;
OS Homo sapiens.
XX
XX Key Location/Qualifiers
XX Modified-site 69
XX /note- "derivatised with an agent capable of forming
XX a covalent S-C bond with Cys"
XX Modified-site 89
XX /note- "derivatised with an agent capable of
XX forming a covalent S-C bond with Cys"
XX EP949664-A.
XX 15-JUL-1992.
XX 09-JAN-1992; 92EP-0100257.
XX 09-JAN-1991; 91GB-0000381.
XX (FARM) FARMITALIA ERBA SRL CARLO.
XX Bertolero F, Caccia P, Calet G, Nitli G;
XX WPI; 1992-235730/29.
XX
XX PT Derived basic fibroblast growth factor - for treating ulcers,
XX regenerating damaged neural tissue, aiding tissue transplant or
XX bone graft and revascularising ischaemic tissue
XX
XX PS Claim 2; Page 3; 20pp; English.
XX
XX CC The sequence is that of a recombinant human basic fibroblast growth
XX factor which has at least one of the four cysteine residues (pref.
XX Cys 69 and Cys 87) derivatised with an agent able to form a covalent
XX S-C bond with Cys. Typical agents include iodoacetic acid,
XX halocetamide, alkali tetrahydroates, alkyl methanethiosulphonates
XX and 1-6C alkylsulphonates. The derivatised bFGF is used to accelerate
XX the healing of wounds (including burns, ulcers, transplants, and
XX bone grafts), to revascularise ischaemic tissue or to regenerate
XX damaged neural tissue. Compared with native bFGF the recombinant
XX derivatised bFGF has better biological activity and stability (esp.
XX not aggregating by dimer formation) and is also easier to isolate.
XX
XX SQ Sequence 146 AA;
XX
XX Query Match 100.0%; Score 467; DB 13; Length 146;
XX Best Local Similarity 100.0%; Pred. No. 2.5e-48;
XX Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
XX
XX QY 1 FLRIHPDGRVGVREKSDPHIKILOAERGVSIKGVCANRYLAMKEDGRLASKCVTD 60
XX |
XX DB 31 FLRIHPDGRVGVREKSDPHIKILOAERGVSIKGVCANRYLAMKEDGRLASKCVTD 90
XX |
XX QY 61 ECFPERLESNNYTRSRKTSYVAL 88
XX |
XX DB 91 ECFPERLESNNYTRSRKTSYVAL 118
XX |
XX
XX RESULT 11
XX AAR34494
XX ID AAR34494 standard; protein; 146 AA.
XX
XX AC AAR34494;
XX
XX DT 06-AUG-1993 (first entry)
XX
XX DE Human basic fibroblast Growth Factor.
XX KW bFGF; muten; glycosylation site; glycoprotein.
XX

OS Homo sapiens.
XX
XX JF05076356-A.
XX
XX 30-MAR-1993.
XX
XX 30-MAY-1991; 91JP-0127435.
XX
XX 31-MAY-1990; 90JP-0143388.
XX
XX (TAKE) TAKEDA CHEM IND LTD.
XX WPI; 1993-139564/17.
XX
XX PT FGF muten prep. useful for therapy of burn or thrombosis - by
XX transformation of lymphocyte-contained animal cell by vector
XX contg. DNA encoding FGF muten
XX
XX PS Disclosure; Page 3; 23pp; Japanese.
XX
XX CC The invention covers muteins of FGF (esp. bFGF) which contain at
XX least one glycosylation site. The muteins can be used to treat burns
XX and thrombosis.
XX
XX SQ Sequence 146 AA;
XX
XX Query Match 100.0%; Score 467; DB 14; Length 146;
XX Best Local Similarity 100.0%; Pred. No. 2.5e-48;
XX Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
XX
XX QY 1 FLRIHPDGRVGVREKSDPHIKILOAERGVSIKGVCANRYLAMKEDGRLASKCVTD 60
XX |
XX DB 31 FLRIHPDGRVGVREKSDPHIKILOAERGVSIKGVCANRYLAMKEDGRLASKCVTD 90
XX |
XX QY 61 ECFPERLESNNYTRSRKTSYVAL 88
XX |
XX DB 91 ECFPERLESNNYTRSRKTSYVAL 118
XX |
XX
XX RESULT 12
XX AAR65925
XX ID AAR65925 standard; Protein; 146 AA.
XX
XX AC AAR65925;
XX
XX DT 10-JUL-1995 (first entry)
XX
XX DE Fibroblast growth factor b (bFGF) muten Asn7.
XX KW Fibroblast growth factor basic; bFGF; glycosylation sites;
XX traumas; burns; thrombosis; arteriosclerosis.
XX OS Homo sapiens.
XX
XX FH Key Location/Qualifiers
XX FT Region 7..9
XX /label- glycosylation_site
XX
XX PN US5360896-A.
XX
XX PD 01-NOV-1994.
XX
XX PF 20-APR-1990; 90US-0511469.
XX
XX PR 26-APR-1990; 90JP-0108595.
XX
XX PA (TAKE) TAKEDA CHEM IND LTD.
XX
XX PI Igarashi K, Sasada R, Senoo M;
XX WPI; 1994-349502/43.
XX N-PSDB; AAO78217.
XX

XX Muteins of naturally occurring fibroblast growth factor - into
 PT which have been introduced at least one glycosylation site.
 XX
 PS Claim 13; Fig 3; 31pp; English.

CC AAQ78217 encodes AAR65925 the fibroblast growth factor b (bFGF)
 CC mutin Asn14, where the native gly17 residue has been replaced
 CC by an Asn residue. The resultant glycosylation site is
 CC glycosylated with a sugar chain selected from the following
 CC group N-acetyl glucosamine, N-acetyl galactosamine, mannose,
 CC galactose, fucose and cyalic acid. The mutin has improved
 CC stability, intracellular productivity and cell growth promoting
 CC activity, it can also be produced in larger amounts than FGF
 CC isolated from natural sources. AAR65925 can be used in the
 CC treatment of traumas and burns, and in the production of a
 CC preventative therapeutic medicine for thrombosis and
 CC arteriosclerosis.

SO Sequence 146 AA:

Query Match 100.0%; Score 467; DB 15; Length 146;
 Best Local Similarity 100.0%; Pred. No. 2.5e-48;
 Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHDSGVDCVREKSDPHIKIQLAERGVVSTKGVCANRYLAKEDGRLLASKCTVD 60
 DB 31 FLRIHDSGVDCVREKSDPHIKIQLAERGVVSTKGVCANRYLAKEDGRLLASKCTVD 90
 OY 61 ECFEERLESNNYNTYRSKRTSWYAL 88
 DB 91 ECFEERLESNNYNTYRSKRTSWYAL 118

RESULT 13
 AAR65926

ID AAR65926 standard; Protein; 146 AA.

XX AC AAR65926;

XX DT 10-JUL-1995 (first entry)

XX DE Fibroblast growth factor b (bFGF) mutin Asn144.

XX KW Fibroblast growth factor basic; bFGF; glycosylation sites;
 XX traumas; burns; thrombosis; arteriosclerosis.

XX OS Homo sapiens.

XX FH Key Location/Qualifiers

XX FT Region 144..146

XX FT /label= glycosylation_site

XX PN US5360896-A.

XX PD 01-NOV-1994.

XX PF 20-APR-1990; 90US-0511469.

XX PR 26-APR-1990; 90JP-0108595.

XX PA (TAKE) TAKEDA CHEM IND LTD.

XX PI Igarashi K, Sasada R, Senoo M;

XX DR WPI: 1994-349502/43.

XX DR N-PSDB; AAQ78218.

XX PT Muteins of naturally occurring fibroblast growth factor - into
 XX which have been introduced at least one glycosylation site.
 XX
 PS Claim 13; Fig 5; 31pp; English.

XX AAQ78218 encodes AAR65926 the fibroblast growth factor b (bFGF)
 CC mutin Asn144, where the native Ala144 residue has been replaced
 CC by an Asn residue. The resultant glycosylation site is
 CC glycosylated with a sugar chain selected from the following
 CC group N-acetyl glucosamine, N-acetyl galactosamine, mannose,
 CC galactose, fucose and cyalic acid. The mutin has improved
 CC stability, intracellular productivity and cell growth promoting
 CC activity, it can also be produced in larger amounts than FGF
 CC isolated from natural sources. AAR65926 can be used in the
 CC treatment of traumas and burns, and in the production of a
 CC preventative therapeutic medicine for thrombosis and
 CC arteriosclerosis.

SO Sequence 146 AA:

Query Match 100.0%; Score 467; DB 15; Length 146;
 Best Local Similarity 100.0%; Pred. No. 2.5e-48;
 Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHDSGVDCVREKSDPHIKIQLAERGVVSTKGVCANRYLAKEDGRLLASKCTVD 60
 DB 31 FLRIHDSGVDCVREKSDPHIKIQLAERGVVSTKGVCANRYLAKEDGRLLASKCTVD 90
 OY 61 ECFEERLESNNYNTYRSKRTSWYAL 88
 DB 91 ECFEERLESNNYNTYRSKRTSWYAL 118

RESULT 14
 AAY87847

ID AAY87847 standard; Protein; 146 AA.

XX AC AAY87847;

XX DT 01-SEP-2000 (first entry)

XX DE Human FGF-2 protein.

XX KW FGF-2; fibroblast growth factor; cardiant; treatment; angiogenesis;
 XX coronary artery disease; myocardial infarction injury; human.

XX OS Homo sapiens.

XX PN WO200021548-A2.

XX PD 20-APR-2000.

XX PF 13-OCT-1999; 99WO-US22936.

XX PR 13-OCT-1998; 98US-0104103.

XX PA (CHIR) CHIRON CORP.

XX PA (WHIT/) WHITEHOUSE M J.

XX PI Kavanaugh WM;

XX DR WPI: 2000-317840/27.

XX PT Novel unit dose comprising fibroblast growth factor, its antigenically
 XX active fragment or mutin for inducing cardiac angiogenesis, treating
 XX coronary artery disease and reducing post myocardial infarction injury

XX PS Claim 1; Page 56-57; 67pp; English.

XX This invention describes a novel unit dose (I), of fibroblast growth
 CC factor (FGF) comprising 0.008-6.1 mg of a mammalian FGF comprising
 CC sequence of 140 ((II) and (III)), 146 ((IV) and (V)), 205 (VI), 266
 CC (VII), 207 ((VIII) and (XI)), 215 (IX), and 208 (X) amino acids (aa),
 CC given in the specification, its antigenically active fragment or
 CC mutin. The product of the invention has angiogenic and cardiant

CC activity. (1) is used for treating a human patient for coronary artery
CC disease, and inducing angiogenesis in the human heart. (1) further
CC provides an adjunct for reducing post myocardial infarction injury in
CC humans. The unit dose provides the human patient with a rapid and
CC therapeutic cardiac angiogenesis sufficient to obviate surgical
CC intervention and results in an superior increase in the treated
CC patients' exercise tolerance time (ETT). It also provides a safe and
CC therapeutically efficacious treatment for the patients with coronary
CC artery disease that lasts at least 6 months before a further treatment
CC is needed. The method provides superior increase of 1.5-2 minutes in
CC the treated patient's (ETT), compared to an increase of 30 seconds for
CC current modes treatment. This sequence represents the human FGF-2 protein
CC fragment described in the method of the invention.

XX
SQ Sequence 146 AA;

Query Match 100.0%; Score 467; DB 21; Length 146;
Best Local Similarity 100.0%; Pred. No. 2.5e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDYREKSDPHIKIQLQAEERGVVSIKGVCANRYLAMKEDGRLLASKCVTD 60
|||||
DB 31 flrlhpdyrvdyreksdphiklqlgeevgvsvikgvcanrylamkedgrllaskcvtd 90
|||||

OY 61 ECFEERLESNNNTYRSRKYTSWYAL 88
|||||
DB 91 ecfferlesnnytyrsrkytswyal 118
|||||

RESULT 15

ID AAE11974
AAE11974 standard; Protein; 146 AA.

XX
AC AAE11974;

DT 18-DEC-2001 (first entry)

DE Human fibroblast growth factor-2 (FGF-2) #1.

XX Human; therapy; erectile dysfunction; fibroblast growth factor-2; FGF-2;

KM epidermal growth factor; EGF; platelet derived growth factor; PDGF;

KM vascular endothelial growth factor; VEGF; tissue growth factor; TGF;

XX Impotence; vasotrophic.

OS Homo sapiens.

XX
PN WO200168125-A2.

PD 20-SEP-2001.

PF 09-MAR-2001; 2001WO-US07702.

PR 10-MAR-2000; 2000US-188480P.

PR 11-MAY-2000; 2000US-203415P.

XX
PA (CHIR) CHIRON CORP.

XX
PI Whitehouse MJ;

XX
DR WPI; 2001-616273/71.

DR N-PSDB; AAD19521.

PT Treating or preventing erectile dysfunction, comprises administering
PT growth factor, particularly fibroblast growth factor to blood vessels
PT in the penis, groin or leg

PS Claim 6; Page 32; 35pp; English.

CC The present invention relates to a method for treating or preventing
CC erectile dysfunction, comprising administering a fibroblast growth
CC factor (FGF), epidermal growth factor (EGF), platelet derived growth
CC factor (PDGF), vascular endothelial growth factor (VEGF) or tissue

CC growth factor (TGF). The invention is used to treat or prevent erectile
CC dysfunction, or impotence. The present sequence is a human FGF-2
CC protein.

XX
SQ Sequence 146 AA;

Query Match 100.0%; Score 467; DB 22; Length 146;
Best Local Similarity 100.0%; Pred. No. 2.5e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDYREKSDPHIKIQLQAEERGVVSIKGVCANRYLAMKEDGRLLASKCVTD 60
|||||
DB 31 flrlhpdyrvdyreksdphiklqlgeevgvsvikgvcanrylamkedgrllaskcvtd 90
|||||

OY 61 ECFEERLESNNNTYRSRKYTSWYAL 88
|||||
DB 91 ecfferlesnnytyrsrkytswyal 118
|||||

Search completed: June 2, 2002, 18:03:40
Job time: 578 sec

Sun Jun 2 18:28:50 2002

us-09-642-277a-3.rag

Page 9

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:04:49 ; Search time 61.66 Seconds
(without alignments)
319,841 Million cell updates/sec

Title: US-09-642-277A-2

Sequence: 1 LQDRGRGALPGRLGGRGR.....FLRIHPDGRVDGVRKSDPH 114

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 562222 seqs, 172994929 residues

Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 08
Maximum Match 1008
Listing first 45 summaries

Database :

1: SP archaea:*
2: SP bacteria:*
3: SP fungi:*
4: SP human:*
5: SP invertebrate:*
6: SP mammal:*
7: SP mhc:*
8: SP organelle:*
9: SP phage:*
10: SP plant:*
11: SP rodent:*
12: SP virus:*
13: SP vertebrate:*
14: SP unclassified:*
15: SP virus:*
16: SP bacteriophage:*
17: SP archaea:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	619	100.0	114	4	Q16443
2	617	99.7	114	4	O00527
3	542	87.6	196	4	P78443
4	314	50.7	170	11	O60487
5	294.5	40.6	153	11	O92583
6	252	40.7	155	13	O90Y92
7	194	31.3	130	6	O77767
8	174.5	28.2	59	4	O9UBK1
9	174.5	28.2	59	4	O16089
10	174.5	28.2	60	4	O16588
11	166.5	26.9	70	11	O54837
12	141	22.8	101	13	P79706
13	124	20.0	125	13	O987D8
14	123.5	20.0	249	11	O922D9
15	123.5	20.0	414	11	O922E1
16	121.5	19.6	588	12	O91F08

17	120.5	19.5	381	4	O96015	O96415 homo sapien
18	119	19.2	302	4	O9UTS8	O9US8 homo sapien
19	119	19.2	411	4	O9UBB5	O9UB5 homo sapien
20	119	19.2	1186	5	O61080	O61080 acanthamoeb
21	118	19.1	476	12	O80890	O80890 herpesvirus
22	115	18.6	619	12	O91F09	O91F09 cytomoligus
23	111	17.9	511	12	O91332	O91332 cercopithec
24	110	17.8	1958	12	O69340	O69340 pseudotribie
25	107.5	17.4	400	10	O92RM3	O92RM3 antitritinum
26	107.5	17.4	1215	5	O77202	O77202 acanthamoeb
27	106.5	17.2	106	12	O41981	O41981 murid herpe
28	106.5	17.2	905	5	O95PX8	O95PX8 caenorhabd1
29	104	16.8	193	10	O94EP5	O94EP5 arabidopsis
30	104	16.8	243	10	O9C7H1	O9C7H1 arabidopsis
31	104	16.8	320	10	O9S2Z1	O9S2Z1 arabidopsis
32	104	16.8	320	10	O94AH9	O94AH9 arabidopsis
33	104	16.8	559	5	O46132	O46132 locusta mlg
34	103.5	16.7	305	5	O17805	O17805 caenorhabd1
35	103.5	16.7	316	5	O93207	O93207 caenorhabd1
36	103.5	16.7	344	6	O9NOB4	O9NOB4 macaca fasc
37	103.5	16.7	350	10	O93VAB	O93VAB arabidopsis
38	103.5	16.7	369	10	O91QR7	O91QR7 arabidopsis
39	103	16.6	189	10	O9FK53	O9FK53 arabidopsis
40	103	16.6	203	11	O62084	O62084 mus musculu
41	102.5	16.6	322	13	O9ETB4	O9ETB4 brachydanio
42	102	16.5	1014	10	O9SHE3	O9SHE3 arabidopsis
43	101.5	16.4	1432	10	O9PPR8	O9PPR8 chlamydomon
44	101.5	16.4	316	5	O93210	O93210 caenorhabd1
45	101.5	16.4	529	2	P94909	P94909 microbacter

ALIGNMENTS

RESULT	1	PRELIMINARY	PRT	114 AA.
Q16443	1	Q16443		
AC	Q16443			
DT	01-NOV-1996	(TREMBLrel. 01, Created)		
DT	01-NOV-1996	(TREMBLrel. 01, Last sequence update)		
DT	01-JUN-2001	(TREMBLrel. 17, Last annotation update)		
DE	BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.			
OX	NCBI_TaxID=9606;			
RN	(1)			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=92152654; PubMed=1785797;			
RA	Floorkiewicz R.Z., Shihata F., Barankiewicz T., Baird A.,			
RA	Gonzalez A.M., Floorkiewicz E., Shah N.;			
RT	"Basic fibroblast growth factor gene expression."			
RL	Ann. N. Y. Acad. Sci. 638:109-126(1991).			
DR	EMBL; S81809; AAB21432.2;			
DR	HSSP; P09038; 1BFF.			
DR	InterPro; IPR002209; HBGF_FGF.			
DR	Pfam; PF00167; FGF_1.			
DR	ProDom; PD000631; HBGF_FGF_1.			
FT	NON_TER			
FT	NON_TER			
FT	NON_TER			
SO	SEQUENCE			
	114 AA: 11670 MW; 88DCA49C774D61AA CRC64;			
Query Match	100.0%; Score 619; DB 4; Length 114;			
Best Local Similarity	100.0%; Pred. No. 4.4e-48;			
Matches	114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;			
OY	1 LQDRGRGALPGRLGGRGRAPERVGGRGRCGTAAAPAAAGSRPAGCTAAAGS 60			
DB	1 LQDRGRGALPGRLGGRGRAPERVGGRGRCGTAAAPAAAGSRPAGCTAAAGS 60			
OY	61 ITTLPALPEDGSGAAPPGHFDPKRLCYKNGGFFLRHPDGRVDGVRKSDPH 114			

Db 61 ITTLPALPEDGSGGAPPPGHFKDPKRLCYCKNGGFLLRIHPDGRVNDVREKSDPH 114

RESULT 2

ID 000527 PRELIMINARY: PRT: 114 AA.

AC 000527:

DT 01-JAN-1998 (TREMblrel. 05, Created)

DT 01-JAN-1998 (TREMblrel. 09, last sequence update)

DT 01-JUN-2001 (TREMblrel. 17, last annotation update)

DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).

GN FGF-2 OR FGF2.

OS Homo sapiens (Human).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.

OX NCBI_TaxID=9606;

RM (1)

RP SEQUENCE FROM N.A.

RC TISSUE=BLOOD;

RA Handschug K., Glaeser C.;

RT "Polymorphism in the 5' untranslated region of the FGF-2 gene: C to T transition (79 bp upstream of the first CUG codon).";

RL Submitted (MAY-1997) to the EMBL/GenBank/DBJ databases.

RM (2)

RP SEQUENCE FROM N.A.

RC TISSUE=BLOOD;

RA Handschug K., Archoukieh E., Glaeser C.;

RT "Mutations in the 5' untranslated region of the FGF-2 gene: transition G to A on position 19 and transversion G to C on position 97.";

RL Submitted (NOV-1999) to the EMBL/GenBank/DBJ databases.

DR EMBL: Y13468; CAAT3868.1; -

DR EMBL: A1250952; CAB61690.1; -

DR HSSP: P09038; 1BPF.

DR InterPro: IPR002209; HBGF_FGF.

DR Pfam: PF00167; FGF. 1.

DR ProDom: PD000831; HBGF_FGF; 1.

FT NON TER 114 114

SO SEQUENCE 114 AA; 11688 MW; 98DC6381C1960CID CRC64;

Query Match 99.7%; Score 617; DB 4; Length 114;
Best Local Similarity 99.1%; Pred. No. 6.6e-48;
Matches 113; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Db 1 LGGRGGRALPGRLGGRGRAPERYGGRGRGTAAAPAAAGSRPGAGTMAAGS 60

QY :|||||

DB 1 MGGRGGRALPGRLGGRGRAPERYGGRGRGTAAAPAAAGSRPGAGTMAAGS 60

QY 61 ITTLPALPEDGSGGAPPPGHFKDPKRLCYCKNGGFLLRIHPDGRVNDVREKSDPH 114

DB 61 ITTLPALPEDGSGGAPPPGHFKDPKRLCYCKNGGFLLRIHPDGRVNDVREKSDPH 114

RESULT 3

ID P78443 PRELIMINARY: PRT: 196 AA.

AC P78443:

DT 01-MAY-1997 (TREMblrel. 03, Created)

DT 01-MAY-1997 (TREMblrel. 03, last sequence update)

DT 01-JUN-2001 (TREMblrel. 17, last annotation update)

DE 21 KRA BASIC FIBROBLAST GROWTH FACTOR (BFGF).

GN FGF2.

OS Homo sapiens (Human).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.

OX NCBI_TaxID=9606;

RM (1)

RP SEQUENCE FROM N.A.

RC MEDLINE=89184522; PubMed=2538817;

RA Prats H., Rashed M., Prats A.C., Klagsbrun M., Lelias J.M., Liauun P., Chalou P., Tauber J.P., Amalric F., Smith J.A., Caput D.;

RT "High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.";

RL Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).

RN (2)

RP SEQUENCE OF 81-168 FROM N.A.

RX MEDLINE=93038590; PubMed=1417798;

RA Watson R., Anthony F., Pickett M., Lambden P., Masson G.M., Thomas E.J.;

RT "Reverse transcription with nested polymerase chain reaction shows expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in vitro fertilisation patients.";

RL Biochem. Biophys. Res. Commun. 187:1227-1231(1992).

DR EMBL: J04513; AA452532.1; -

DR EMBL: S47380; AA013853.1; -

DR HSSP: P09038; 1BPF.

DR InterPro: IPR002209; HBGF_FGF.

DR InterPro: IPR002348; IL1_HBGF.

DR Pfam: PF00167; FGF. 1.

DR PRINTS: PR00262; IL1HBGF.

DR ProDom: PD000831; HBGF_FGF; 1.

DR SMART: SM00442; FGF. 1.

DR PROSITE: PS00247; HBGF_FGF; 1.

SO SEQUENCE 196 AA; 21203 MW; D6B5447137E60343 CRC64;

Query Match 87.6%; Score 542; DB 4; Length 196;
Best Local Similarity 99.0%; Pred. No. 5.5e-41;
Matches 99; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 15 LGGRGGRAPERYGGRGRGTAAAPAAAGSRPGAGTMAAGSITTLPALPEDGSG 74

DB 1 MGGRGGRAPERYGGRGRGTAAAPAAAGSRPGAGTMAAGSITTLPALPEDGSG 60

QY 75 APPPGHFKDPKRLCYCKNGGFLLRIHPDGRVNDVREKSDPH 114

DB 61 APPPGHFKDPKRLCYCKNGGFLLRIHPDGRVNDVREKSDPH 100

RESULT 4

ID Q60487 PRELIMINARY: PRT: 170 AA.

AC Q60487:

DT 01-NOV-1996 (TREMblrel. 01, Created)

DT 01-MAY-2000 (TREMblrel. 13, last sequence update)

DT 01-JUN-2001 (TREMblrel. 17, last annotation update)

DE FIBROBLAST GROWTH FACTOR 2 (FGF-2) (FIBROBLAST GROWTH FACTOR, BASIC) (BFGF) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN) (PROSTATIC GROWTH FACTOR) (FRAGMENTS).

DE FGF2.

OS Cavia porcellus (Guinea pig).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Hystriognathii; Cavidae; Cavia.

OX NCBI_TaxID=10141;

RM (1)

RP SEQUENCE OF 53-170 FROM N.A.

RC TISSUE=PROSTATE;

RA Ricciardelli C.;

RL Submitted (JAN-1996) to the EMBL/GenBank/DBJ databases.

RN (2)

RP SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING.

RX MEDLINE=89273588; PubMed=2730645;

RA Sommer A., Moscatelli D., Rifkin D.B.;

RT "An amino-terminally extended and post-translationally modified form of a 25KD basic fibroblast growth factor.";

RL Biochem. Biophys. Res. Commun. 160:1267-1274(1989).

RN (3)

RP PARTIAL SEQUENCE, AND METHYLATION.

RX MEDLINE=91322114; PubMed=173785;

RA Burgess W.H., Bizik J., Mehlman T., Quarto N., Rifkin D.B.;

RT "Direct evidence for methylation of arginine residues in high molecular weight forms of basic fibroblast growth factor.";

RL Cell Regul. 2:87-93(1991).

RN (4)

RP CHARACTERIZATION.

RC TISSUE=BRAIN;

RA MEDLINE:87289686; PubMed-3475702;
 RA Moscatelli D., Joseph-Silverstein J., Manejias R., Rifkin D.B.;
 RT "Mr 25,000 heparin-binding protein from guinea pig brain is a high
 RT molecular weight form of basic fibroblast growth factor.";
 RL Proc. Natl. Acad. Sci. U.S.A. 84:5778-5782(1987).
 CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC
 CC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC
 CC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND
 CC HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR
 CC MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION,
 CC PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS
 CC SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO
 CC ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).
 CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST
 CC ONE HEPARAN SULFATE (BY SIMILARITY).
 CC -1- ALTERNATIVE PRODUCTS: AT LEAST TWO ISOFORMS; 18 KDA AND 25 KDA
 CC (SHOWN HERE); MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION
 CC INITIATION SITES. BOTH FORMS ARE ACTIVE.
 CC -1- PTM: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLE).
 CC -1- CAUTION: THIS IS A CONCEPTUAL TRANSLATION; MANY FRAMESHIFTS WERE
 CC INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE
 CC SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF
 CC PARTIAL AMINO-ACID SEQUENCING.
 DR EMBL: L75974; AAA85394.1; ALT_FRAME.
 DR HSSP: P09038; IBLA.
 DR InterPro: IPR002209; HBG_FGF.
 DR InterPro: IPR002348; IL_HBG.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; ILHBGF.
 DR PRODOM: PD000831; HBG_FGF_1.
 DR SMART: SM00442; FGF_1_FGF_1.
 DR PROSITE: PS00247; HBG_FGF_1.
 KW Growth factor; Mitogen; Vascularization; Heparin-binding;
 KW Alternative initiation; Methylation; Phosphorylation;
 KW Developmental protein.
 FT NON_TER 1 1
 FT NON_CONS 15 16
 FT CHAIN <1 170
 FT CHAIN 22 170
 FT INIT_MET 22 22
 FT DOMAIN 11 14
 FT NON_CONS 50 51
 FT SITE 61 63
 FT SITE 103 105
 FT BINDING 50 51
 FT BINDING 105 105
 FT BINDING 143 159
 FT MOD_RES 4 4
 FT MOD_RES 6 6
 FT MOD_RES 8 8
 FT MOD_RES 88 88
 FT MOD_RES 136 136
 FT MOD_RES 170 170
 FT MOD_RES 18354 MW; F36BDEC736ESFEDE CRC64;
 SQ SEQUENCE

Query Match. 50.7%; Score 314; DB 11; Length 170;
 Best Local Similarity 71.6%; Pred. No. 9, 4e-21;
 Matches 63; Conservative 2; Mismatches 9; Indels 14; Gaps 2;

OY 27 VGGRGGRGTAAAPAAAGSRPAGTMAAGSITTLPALPEDGSGGAPPGHFKDKPKR 86
 DB 1 VGGRGGRGTAA-----AAREPGAMAAGSITTLPALPEGDGCAVAFGHFKDP-- 50
 OY 87 LYCKNGGFFLRHPDGRVDCVREKSDPH 114
 DB 51 -----NGGFFLRHPDGRVDCVREKSDPH 74
 RESULT 5
 ID 0925A3 PRELIMINARY; PRT; 153 AA.
 AC 0925A3;

DT 01-DEC-2001 (TREMBLrel. 19, Created)
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE FIBROBLAST GROWTH FACTOR 2.
 GN FGF2.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OX NCBI_Taxid-10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN-FVB/N;
 RA Dicks R.P., Gries A.E.;
 RT "Multiple novel variants of fibroblast growth factor 2 transcripts are
 RT expressed in mouse embryos.";
 RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AY027551; AA52308.1;
 SO SEQUENCE 153 AA; 17024 MW; AD8163CDBFA2FAAB CRC64;

Query Match. 47.6%; Score 294.5; DB 11; Length 153;
 Best Local Similarity 91.5%; Pred. No. 4, 6e-19;
 Matches 54; Conservative 2; Mismatches 2; Indels 1; Gaps 1;

OY 56 MAAGSITTLPALPEDGSGGAPPGHFKDKPKRLYCKNGGFFLRHPDGRVDCVREKSDPH 114
 DB 1 MAAGSITSLPALPEDGGA-APPGHFKDKPKRLYCKNGGFFLRHPDGRVDCVREKSDPH 58
 RESULT 6
 ID 090Y92 PRELIMINARY; PRT; 155 AA.
 AC 090Y92;
 DT 01-DEC-2001 (TREMBLrel. 19, Created)
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE FIBROBLAST GROWTH FACTOR-2.
 GN FGF-2.
 OS Cynops pyrrhogaster (Japanese common newt).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Caudata; Salamandridae; Cynops.
 OX NCBI_Taxid-8330;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Susaki K., Nakamura K., Chiba C., Saito T.;
 RT "Expression of FGF2 during newt retinal development and
 RT regeneration.";
 RL Submitted (JUL-2001) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AB064664; BAB63249.1;
 SO SEQUENCE 155 AA; 17278 MW; 2B583058538AB8D9 CRC64;

Query Match. 40.7%; Score 252; DB 13; Length 155;
 Best Local Similarity 78.0%; Pred. No. 2, 8e-15;
 Matches 46; Conservative 5; Mismatches 8; Indels 0; Gaps 0;

OY 56 MAAGSITTLPALPEDGSGGAPPGHFKDKPKRLYCKNGGFFLRHPDGRVDCVREKSDPH 114
 DB 1 MAAGSITSLPALPEDGNGFTTGGFKPKRLYCKNGGFFLRINSDDKVDGAREKSDPH 59
 RESULT 7
 ID 077767 PRELIMINARY; PRT; 130 AA.
 AC 077767;
 DT 01-NOV-1998 (TREMBLrel. 08, Created)
 DT 01-NOV-1998 (TREMBLrel. 08, Last sequence update)
 DT 01-JUN-2001 (TREMBLrel. 17, Last annotation update)
 DE BASIC FIBROBLAST GROWTH FACTOR (BFGF) (FGF-2) (HEPARIN-BINDING GROWTH
 DE FACTOR 2) (HBGF-2) (PROSTATROPIN) (PROSTATIC GROWTH FACTOR)
 DE BFGF.
 GN Canis familiaris (Dog).

```

Query Match          31.3%; Score 194; DB 6; Length 130;
Best Local Similarity 100.0%; Pred. NO. 3.4e-10;
Matches 34; Conservative 0; Mismatches 0; Indels 0; Gaps 0.

QY      81 FKDPKRLCYCKNGGFFLRHPDGRVDSVEKEKSDPH 114
        |||||||
Db       1 FKDPKRLCYCKNGGFFLRHPDGRVDSVEKEKSDPH 34

RESULT      8
Q9UBRK1     PRELIMINARY; PRT; 59 AA.
AC Q9UBRK1;
DT 01-MAY-2000 (TRIBLETrel. 13, Created)
DT 01-MAY-2000 (TRIBLETrel. 13, Last sequence update)
DT 01-JUN-2001 (TRIBLETrel. 17, Last annotation update)
DE ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
GN FGFA.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homidae; Homo.
OC NCBI_Taxid=9606;
RX MEDLINE=93181239; PubMed=7680120;
RA Payson R.A., Canatan H., Chotantl M.A., Wang W.P., Harris S.E.,
RT Myers R.L., Chu I.M.;
RL "Cloning of two novel forms of human acidic fibroblast growth factor
   [argf] mRNA.";
Nucleic Acids Res. 21:489-495(1993).

```

Query Match	28.2%	Score	174.5	DB	4	Length	59
Best Local Similarity	59.3%	Pred. No.	8.4e-09				
Matches	35	Conservative	4	Mismatches	17	Indels	3
						Gaps	1

RESULT	9			
Q16089				
ID	Q16089	PRELIMINARY;	PRT;	59 AA.
AC	Q16089;			
DT	01-NOV-1996	(TREMBLrel. 01, Created)		
DT	01-NOV-1996	(TREMBLrel. 01, Last sequence update)		
DT	01-JUN-2001	(TREMBLrel. 17, Last annotation update)		
DE	ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Hominiidae; Homo.			
OX	NCBI_TaxID=9606;			
RN	11			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=94069734; PubMed=7504343;			
RA	Zhao X.M., Teoh T.R., Hlebert M., Frist W.H., Miller G.G.;			
RT	"The expression of acidic fibroblast growth factor (heparin-binding			
RT	growth factor-1) and cytokine genes in human cardiac allografts and T			
RT	cells.";			
RL	Transplantation 56:1177-1182(1993).			
DR	EMBL; S67294; AAB29059.1; -.			
DR	HSSP; P05230; ZAKM.			
DR	InterPro; IPR002209; HBGF_FGF.			
DR	Pfam; PF00167; FGF; 1.			
DR	ProDom; PD000831; HBGF_FGF; 1.			
FT	NON_TER	59		
FT	SEQUENCE	59 AA;	6595 MW;	9C83D1E64847748A CRC64;

Query Match	28.28	Score 174.5	DB 4	Length 59
Best Local Similarity	59.38	Pred. No. 8.4e-09		
Matches 35; Conservative	4	Mismatches 17	Indels 3	Gaps 1

QY 56 MAAGSITTLPALPEDGSGAFPPEHFKDPRKLYCKMGGFLLRIHPDGRYDVGREKSDPH 114
||| ||| ||| :||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 1 MAEGSITTFALTEKFN---LPENYKKPKLLYCNSNGHFLLRPDGYVDGTRODSQH 56

RESULT	10		
Q16588			
ID	Q16588	PRELIMINARY;	PRT; 60 AA.
AC	Q16588;		
DT	01-NOV-1996 (TREMBLrel. 01, Created)		
DT	01-NOV-1996 (TREMBLrel. 01, Last sequence update)		
DT	01-JUN-2001 (TREMBLrel. 17, Last annotation update)		
DE	ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).		
OS	OS Homo sapiens (Human).		
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;		
OC	Mammalia; Eutheria; Primates; Catarrhini; Hominiidae; Homo.		
OX	NBI_TaxID=9606;		
OX	1)		
PN	SEQUENCE FROM N.A.		
RP	MEDLINE=94069734; PubMed=7504343;		
RX	Zhao X.M., Yeoh T.K., Hiebert M., First W.H., Miller G.G.;		
RA			

RESULT	15	
0922E1		
ID	0922E1	PRELIMINARY; PRT; 414 AA.
AC	0922E1;	
DT	01-MAY-1999 (TREMBirel. 10, Created)	
DT	01-MAY-1999 (TREMBirel. 10, last sequence update)	
DT	01-JUN-2001 (TREMBirel. 17, last annotation update)	
DE	METHYL-CPG BINDING PROTEIN MB2.	
GN	MB2.	
OS	Mus musculus (Mouse).	
OC	Eukaryotes; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;	
OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.	
OX	NCBI_TaxID=10090;	
NN	[1]	

Search completed: June 2, 2002, 18:04:51
Job time: 629 sec

Sun Jun 2 18:28:50 2002

us-09-642-277a-2.rpt

GenCore version 4.5
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OW protein - protein search, using sw model

Run on: June 2, 2002, 18:05:14 ; Search time 20.21 Seconds

(without alignments)
218,408 Million cell updates/sec

Title: US-09-642-277a-2

Sequence: 1 LGDRGRALPGRLGGRG.....FLRIHPOGRVDVREKSDPH 114

Scoring table:

BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database: SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match Length	ID	Description
1	328	53.0	155 1	FGF2_BOVIN
2	328	53.0	155 1	FGF2_HUMAN
3	322	52.0	155 1	FGF2_SHEEP
4	309.5	50.0	154 1	FGF2_RAT
5	309	49.9	158 1	FGF2_CHICK
6	294.5	47.6	154 1	FGF2_MOUSE
7	290.5	46.9	156 1	FGF2_MONDO
8	287	46.4	137 1	FGF2_RABIT
9	244	39.4	155 1	FGF2_XENLA
10	174.5	28.2	152 1	FGF1_PIG
11	174.5	28.2	155 1	FGF1_HUMAN
12	173.5	28.0	155 1	FGF1_MESAU
13	172.5	27.9	155 1	FGF1_CHICK
14	163.5	26.4	155 1	FGF1_MOUSE
15	160.5	25.9	155 1	FGF1_BOVIN
16	121.5	19.6	1733 1	VNDRA_PRIVA
17	119	19.2	1168 1	MISC_ACACA
18	118.5	19.1	641 1	EBN1_EBV
19	107.5	17.4	809 1	OSB1_RABIT
20	105	17.0	297 1	FBRL_LEIMA
21	105	17.0	825 1	SE5_RAT
22	104	16.8	194 1	RCGF4_CHICK
23	102.5	16.6	1453 1	CA11_CHICK
24	102	16.5	266 1	FGF5_RAT
25	102	16.5	807 1	OSB1_HUMAN
26	99	16.0	202 1	FGF4_MOUSE
27	99	16.0	1147 1	MYSB_ACACA
28	98.5	15.9	264 1	RCGF5_MOUSE
29	98.5	15.9	747 1	SPD1_MOUSE
30	97.5	15.8	283 1	CC19_CAEEL
31	97.5	15.8	352 1	FBRL_CAEEL
32	96.5	15.6	206 1	FGF4_BOVIN
33	95.5	15.4	671 1	CA11_RAT

34	95.5	15.4	860 1	ELS_MOUSE
35	95.5	15.4	1453 1	CA11_MOUSE
36	95.5	15.4	1460 1	CA11_CANFA
37	95.5	15.4	1464 1	CA11_HUMAN
38	95	15.3	327 1	FBRL_GIALA
39	95	15.3	713 1	NOCL_MESAU
40	95	15.3	747 1	CA12_BOVIN
41	95	15.3	1356 1	CA21_ONCMY
42	95	15.3	2944 1	CA17_HUMAN
43	94	15.2	268 1	FGF5_HUMAN
44	94	15.2	1496 1	CA25_HUMAN
45	93.5	15.1	375 1	PSPD_HUMAN

ALIGNMENTS

RESULT	ID	STANDARD	PRT	AA
1	FGF2_BOVIN			
AC	P03969;			
DT	23-OCT-1986	(Rel. 02, Created)		
DT	23-OCT-1986	(Rel. 02, Last sequence update)		
DT	01-MAR-2002	(Rel. 41, Last annotation update)		
DE	Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin) [Contains: Kidney-derived growth factor].			
DE	FGF2 OR FGF-2.			
GN	Bos taurus (Bovine).			
OS	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;			
OC	Bovidae; Bovinae; Bos.			
OX	NCBI_TaxID-9913;			
RN	(1)			
RP	SEQUENCE FROM N.A.			
RA	MEDLINE-86261806; PubMed-2425435;			
RA	Abraham J.A., Whang J.L., Tumolo A., Friedman J.,			
RA	Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;			
RT	"Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";			
RT	Science 233:545-548(1986).			
RL	(2)			
RN	SEQUENCE FROM N.A.			
RP	MEDLINE-87217066; PubMed-3472745;			
RA	Abraham J.A., Whang J.L., Tumolo A., Merz A., Fiddes J.C.;			
RA	"Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";			
RT	Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).			
RL	(3)			
RN	SEQUENCE OF 10-155.			
RP	MEDLINE-86016731; PubMed-3863109;			
RA	Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klapper R.,			
RA	Gospodarowicz D., Boehlen P., Guillemin R.;			
RT	"Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FGF.";			
RT	Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).			
RL	(4)			
RN	SEQUENCE OF 159.			
RP	MEDLINE-8629537; PubMed-3741423;			
RA	Ueno N., Baird A., Esch F., Ling N., Guillemin R.;			
RT	"Isolation of an amino terminal extended form of basic fibroblast growth factor.";			
RT	Biochem. Biophys. Res. Commun. 138:580-588(1986).			
RL	(5)			
RN	SEQUENCE OF 25-41.			
RP	TISSUE-Kidney;			
RC	MEDLINE-86095426; PubMed-4081126;			
RA	Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;			
RA	"Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor.";			
RT	Regul. Pept. 12:201-213(1985).			

RL Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
 RN [6]
 RP SEQUENCE OF 10-35.
 RA MEDLINE-86275260; PubMed-3732516;
 RX Gautschi P., Frater-Schroeder M., Boehlen P.;
 RT "Partial molecular characterization of endothelial cell mitogens from
 RL human brain: acidic and basic fibroblast growth factors.";
 RN FEBS Lett. 204:203-207(1986).
 RP [7]
 RP SEQUENCE OF 10-39.
 RX MEDLINE-86186784; PubMed-3964259;
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
 RT "Human brain-derived acidic and basic fibroblast growth factors:
 RL amino terminal sequences and specific mitogenic activities.";
 RN Biochem. Biophys. Res. Commun. 135:541-548(1986).
 RP [8]
 RP SEQUENCE OF 2-27.
 RX MEDLINE-87156686; PubMed-2435284;
 RA Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K.;
 RT "Amino-terminal sequence of a large form of basic fibroblast growth
 RL factor isolated from human benign prostatic hyperplastic tissue.";
 RN Biochem. Biophys. Res. Commun. 142:702-709(1987).
 RP [9]
 RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
 RX MEDLINE-91195367; PubMed-1707542;
 RA Eriksson A.B., Cousins L.S., Weaver L.H., Matthews B.W.;
 RT "Three-dimensional structure of human basic fibroblast growth
 RL factor.";
 RN Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
 RP [10]
 RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
 RX MEDLINE-94004464; PubMed-7691311;
 RA Eriksson A.E., Cousins L.S., Matthews B.W.;
 RT "Refinement of the structure of human basic fibroblast growth factor
 RL at 1.6-A resolution and analysis of presumed heparin binding sites by
 RN selenate substitution.";
 RP Protein Sci. 2:1274-1284(1993).
 RP [11]
 RP X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
 RX MEDLINE-91195368; PubMed-1849658;
 RA Zhang J., Cousins L.S., Barr P.J., Sprang S.R.;
 RT "Three-dimensional structure of human basic fibroblast growth factor,
 RL a structural homolog of interleukin 1 beta.";
 RN Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
 RP [12]
 RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
 RX MEDLINE-92121151; PubMed-1769963;
 RA Ago H., Kitagawa Y., Fujishima A., Matsunura Y., Katsube Y.;
 RT "Crystal structure of basic fibroblast growth factor at 1.6-A
 RL resolution.";
 RN J. Biochem. 110:360-363(1991).
 RP [13]
 RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
 RX MEDLINE-91095983; PubMed-1702356;
 RA Zhu X., Komiyama H., Chitraro A., Faham S., Fox G.M., Arakawa T.;
 RT "Three-dimensional structures of acidic and basic fibroblast growth
 RL factors.";
 RN Science 251:90-93(1991).
 RP [14]
 RP STRUCTURE BY NMR.
 RX MEDLINE-97040521; PubMed-8888834;
 RA Moy F.J., Seddon A.P., Boehlen P., Powers R.;
 RT "High-resolution solution structure of basic fibroblast growth factor
 RL determined by multidimensional heteronuclear magnetic resonance
 RP spectroscopy.";
 RN Biochemistry 35:13552-13561(1996).
 RP [15]
 RP FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC [16]
 CC SUBUNIT: MONOMER.
 CC [17]
 CC MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES

CC	ARGF.
CC	-1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC	-----
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CC	modified and this statement is not removed. Usage by and for commercial
CC	entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC	or send an email to license@isb-sib.ch) .
CC	-----
DR	EMBL: M17599; AAA52534.1; ALT_INIT.
DR	EMBL: X04431; CAA28027.1; -.
DR	EMBL: X04432; CAA28028.1; -.
DR	EMBL: X04433; CAA28029.1; -.
DR	EMBL: M27968; AAA52448.1; -.
DR	EMBL: J04513; AAA52533.1; ALT_INIT.
DR	PIR: A25824; A25824.
DR	PIR: A26642; A26642.
DR	PIR: B24243; B24243..
DR	PIR: B24301; B24301.
DR	PIR: B32878; B32878.
DR	PIR: S00297; S00297.
DR	PDB: 2FEF; 15-APR-92.
DR	PDB: 4FGF; 15-JUL-93.
DR	PDB: 1FGA; 15-JUL-93.
DR	PDB: 1BFB; 03-APR-96.
DR	PDB: 1BRC; 03-APR-96.
DR	PDB: 1BER; 16-JUN-97.
DR	PDB: 1BFG; 31-JAN-94.
DR	PDB: 2BFH; 30-APR-94.
DR	PDB: 1BLA; 08-NOV-96.
DR	PDB: 1BLD; 08-NOV-96.
DR	MIM: 134920; -.
DR	InterPro: IPR002209; HBGF_FGF.
DR	InterPro: IPR002348; IL1_HBGF.
DR	Pfam: PF00167; FGF_1.
DR	PRINTS: PR00262; IL1HBGF.
DR	ProDom: PD000831; HBGF_FGF_1.
DR	SMART: SM00442; FGF_1.
DR	PROSITE: PS00247; HBGF_FGF_1.
KW	Growth factor; Mitogen; Angiogenesis; Heparin-binding;
KW	3D-structure.
FT	PROPEP 1 9
FT	CHAIN 10 155
FT	SITE 46 48
FT	SITE 86 90
FT	BINDING 27 31
FT	BINDING 116 119
FT	STRAND 30 34
FT	TURN 35 38
FT	STRAND 39 43
FT	TURN 45 46
FT	STRAND 49 52
FT	TURN 55 56
FT	HELIX 58 60
FT	STRAND 62 66
FT	TURN 69 70
FT	TURN 71 76
FT	TURN 77 80
FT	STRAND 81 85
FT	TURN 87 88
FT	STRAND 91 94
FT	HELIx 99 101
FT	STRAND 103 107
FT	TURN 109 110
FT	STRAND 113 117
FT	TURN 121 122
FT	STRAND 124 124
FT	STRAND 127 127
FT	TURN 129 130
FT	STRAND 132 133
FT	HELIx 136 138
FT	HEPARIN-BINDING GROWTH FACTOR 2.
FT	CELL ATTACHMENT SITE (POTENTIAL).
FT	CELL ATTACHMENT SITE (POTENTIAL).
FT	HEPARIN (POTENTIAL).
FT	HEPARIN (POTENTIAL).

FT TURN 141 142
 FT HELIX 144 146
 FT STRAND 148 152
 SQ SEQUENCE 155 AA; 17254 MW; BE6CE13373007129 CRC64;

Query Match 53.0%; Score 328; DB 1; Length 155;
 Best Local Similarity 100.0%; Pred. No. 1.7e-18;
 Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 56 MAAGSITTLPALPEDGSSGAFPPGHFMDPRRLKCKNGCFRLRHPDGRVDGVREKSDPH 114
 DB 1 MAAGSITTLPALPEDGSSGAFPPGHFMDPRRLKCKNGCFRLRHPDGRVDGVREKSDPH 59

RESULT 3
 FGF2_SHEEP STANDARD; PRT; 155 AA.
 AC P20003;
 DT 01-FEB-1991 (Rel. 17, Created)
 DT 01-FEB-1996 (Rel. 33, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).
 GN FGF2 OR FGF-2.
 OS Ovis aries (Sheep).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovidae; Caprinae; Ovis.
 OX NCBI_Taxid=9940;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Sutton R., Ward W.G., Raphael R.A., Cam G.R.;
 RL Submitted (SEP-1994) to the EMBL/GenBank/DBJ databases.
 RN [2]
 RP SEQUENCE OF 9-155.
 RX MEDLINE=88055577; PubMed=3678486;
 RA Simpson R.D., Moritz R.L., Lloyd C.J., Fabril L.J., Nice E.C., Rubira M.R., Burgess A.W.;
 RT Primary structure of ovine pituitary basic fibroblast growth factor.
 RL FEBS Lett. 224:128-132(1987).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC -----
 DR EMBL: L36136; AAA31519.1; -
 DR PIR: S00185; S00185.
 DR HSSP: P09038; 1BFF.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; ILL_HBGF.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; ILLHBGF.
 DR PRODOM: PD000831; HBGF_FGF; 1.
 DR SMART: SM00442; FGF; 1.
 DR PROSITE: PS00247; HBGF_FGF; 1.
 KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT PROPEP 1 9
 FT CHAIN 10 155
 FT SITE 45 48
 FT SITE 87 90
 CC HEPARIN-BINDING GROWTH FACTOR 2.
 CC CELL ATTACHMENT SITE (POTENTIAL).
 CC CELL ATTACHMENT SITE (POTENTIAL).

FT BINDING 27 31
 FT BINDING 116 119
 SQ SEQUENCE 155 AA; 17280 MW; B5F2364BA610606D CRC64;

Query Match 52.0%; Score 322; DB 1; Length 155;
 Best Local Similarity 98.3%; Pred. No. 4.8e-18;
 Matches 58; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 56 MAAGSITTLPALPEDGSSGAFPPGHFMDPRRLKCKNGCFRLRHPDGRVDGVREKSDPH 114
 DB 1 MAAGSITTLPALPEDGSSGAFPPGHFMDPRRLKCKNGCFRLRHPDGRVDGVREKSDPH 59

RESULT 4
 FGF2_RAT STANDARD; PRT; 154 AA.
 AC P13109;
 DT 01-JAN-1990 (Rel. 13, Created)
 DT 01-JAN-1990 (Rel. 13, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).
 GN FGF2 OR FGF-2.
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 OX NCBI_Taxid=101116;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Ovary;
 RX MEDLINE=89061721; PubMed=3196337;
 RA Shimazaki S., Emoto N., Koba A., Mercado M., Shibata F., Cooksey K., Baird A., Ling N.;
 RT Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of its mRNA.
 RL Biochem. Biophys. Res. Commun. 157:256-263(1988).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Brain;
 RX MEDLINE=88262516; PubMed=3387229;
 RA Kurokawa T., Seno M., Igarashi K.;
 RT Nucleotide sequence of rat basic fibroblast growth factor cDNA.
 RL Nucleic Acids Res. 16:5201-5201(1988).
 RN [3]
 RP SEQUENCE OF 1-28 FROM N.A.
 RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Testis;
 RX MEDLINE=97200905; PubMed=9048734;
 RA Pasumathil K.B.S., Jin Y., Cattini P.A.;
 RT Cloning of the rat fibroblast growth factor-2 promoter region and its response to mitogenic stimuli in glioma C6 cells.
 RL J. Neurochem. 68:898-908(1997).
 RN [4]
 RP SEQUENCE OF 35-154 FROM N.A.
 RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Brain;
 RX MEDLINE=92329546; PubMed=1378302;
 RA El-Husseini A.E.D., Paterson J.A., Myal Y., Shu R.P.C.;
 RT PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA containing a unique 3' untranslated region.
 RL Blochim. Biophys. Acta 1131:314-316(1992).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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DR EMBL; M22427; AAAA1210.1; -
DR EMBL; X07285; CAA30265.1; -
DR EMBL; U78079; AAC53225.1; -
DR EMBL; X61697; CAA43863.1; -
DR PIR; S00876; S00876.
DR PIR; A31674; A31674.
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF_1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF_1.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA; 17139 MW; 1A0F14FF423D8403 CRC64;

Query Match 50.0%; Score 309.5; DB 1; Length 154;
Best Local Similarity 96.6%; Pred. No. 4.1e-17;
Matches 57; Conservative 1; Mismatches 0; Indels 1; Gaps 1;

OY 56 MAAGSITLPLALPDGSGGAFPPGHFKDPKRLCYCKNGGFFLRHPDGRVDSVREKSDPH 114
DB 1 MAAGSITLPLALPDGSGGAFPPGHFKDPKRLCYCKNGGFFLRHPDGRVDSVREKSDPH 58

RESULT 5
FGF2_CHICK STANDARD; PRT; 158 AA.
AC P48800;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF).
GN FGF2 OR FGF-2.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=93246053; PubMed=7683281;
RA Borja A.Z., Zeller R., Meljers C.;
RT "Expression of alternatively spliced bFGF first coding exons and
RT antisense mRNAs during chicken embryogenesis.";
RL Dev. Biol. 157:110-118(1993).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC or send an email to license@isb-sib.ch).

DR EMBL; M93707; AAAA6617.1; -
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF_1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF_1.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 12
FT CHAIN 13 158 BY SIMILARITY
FT BINDING 30 34 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 119 122 HEPARIN (POTENTIAL).
SQ SEQUENCE 158 AA; 17374 MW; 7B69B684C17F1816 CRC64;

Query Match 49.9%; Score 309; DB 1; Length 158;
Best Local Similarity 94.8%; Pred. No. 4.6e-17;
Matches 55; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

OY 57 AAGSITLPLALPDGSGGAFPPGHFKDPKRLCYCKNGGFFLRHPDGRVDSVREKSDPH 114
DB 5 AAGSITLPLALPDGSGGAFPPGHFKDPKRLCYCKNGGFFLRHPDGRVDSVREKSDPH 62

RESULT 6
FGF2_MOUSE STANDARD; PRT; 154 AA.
AC P15655;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF) (Prostatoplin).
GN FGF2 OR FGF-2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=90201563; PubMed=2318343;
RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
RT "Isolation of cDNAs encoding four mouse FGF family members and
RT characterization of their expression patterns during embryogenesis.";
RL Dev. Biol. 138:454-463(1990).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J, A/J, AND NOD/LtJ; TISSUE=Spleen;
RA Ma R.Z., Teuscher C.;
RT Submitted (MAY1998) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC or send an email to license@isb-sib.ch).

DR EMBL; M30644; AAA37621.1; -
DR EMBL; AF065903; AAC17503.1; -

DR EMBL: AF065904; AAC17504.1; -
 DR EMBL: AF065905; AAC17505.1; -
 DR PIR: C37360; C37360.
 DR HSSP: P09038; 1BFF.
 DR MGI: MGI:95516; Fgf2.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; IL1HBGF.
 DR ProDom: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT PROPEP 1 9
 FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
 FT BINDING 26 30 HEPARIN (POTENTIAL).
 FT BINDING 115 118 HEPARIN (POTENTIAL).
 FT SEQUENCE 154 AA; 17153 MW; 689P677416274388 CRC64;

Query Match 47.6%; Score 294.5; DB 1; Length 154;
 Best Local Similarity 91.5%; Pred. No. 5.5e-16;
 Matches 54; Conservative 2; Mismatches 2; Indels 1; Gaps 1;

QY 56 MAAGSITTLPALPEDGGGGAFFPGHFKDKRKLYCKNGGFELRIHPDGRVGVREKSDPH 114
 DB 1 MAAGSITTLPALPEDGGA-AFPGHFKDKRKLYCKNGGFELRIHPDGRVGVREKSDPH 58

RESULT 7
 FGF2_MONDO
 ID FGF2_MONDO STANDARD; PRT: 156 AA.
 AC P48798;
 DT 01-FEB-1996 (Rel. 33, Created)
 DT 01-FEB-1996 (Rel. 33, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).
 DE FGF2.
 GN Monodelphis domestica (Short-tailed grey opossum).
 OS Eukaryota; Metazoa; Chordata; Cranialia; Vertebrata; Euteleostomi; Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
 OC NCBI_TaxID=13616;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Eye;
 RX MEDLINE=94296558; PubMed=8024698;
 RA Kusewitt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;
 RT "Characterization of cDNA encoding basic fibroblast growth factor of the marsupial Monodelphis domestica."
 RL DNA Cell Biol. 13:549-554(1994)
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC EMBL: Z15154; CAAT8854.1; AL1_INIT.
 DR HSSP: P09038; 1BFF.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam: PF00167; FGF_1.

DR PRINTS: PR00262; IL1HBGF.
 DR ProDom: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT PROPEP 1 9
 FT CHAIN 10 156 HEPARIN-BINDING GROWTH FACTOR 2.
 FT BINDING 10 156 HEPARIN (POTENTIAL).
 FT BINDING 117 120 HEPARIN (POTENTIAL).
 FT SEQUENCE 156 AA; 17303 MW; 7E655FCC49BF1209 CRC64;

Query Match 46.9%; Score 290.5; DB 1; Length 156;
 Best Local Similarity 90.0%; Pred. No. 1.1e-15;
 Matches 54; Conservative 2; Mismatches 3; Indels 1; Gaps 1;

QY 56 MAAGSITTLPALPED-GGGAFFPGHFKDKRKLYCKNGGFELRIHPDGRVGVREKSDPH 114
 DB 1 MAAGSITTLPALPEDGGGGAFFPGHFKDKRKLYCKNGGFELRIHPDGRVGVREKSDPH 60

RESULT 8
 FGF2_RABIT
 ID FGF2_RABIT STANDARD; PRT: 137 AA.
 AC P48759;
 DT 01-FEB-1996 (Rel. 33, Created)
 DT 01-FEB-1996 (Rel. 33, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin) (Fragment).
 DE FGF2.
 GN Oryctolagus cuniculus (Rabbit).
 OS Oryctolagus cuniculus (Rabbit).
 OC Eukaryota; Metazoa; Chordata; Cranialia; Vertebrata; Euteleostomi; Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
 OC NCBI_TaxID=9986;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=NEW ZEALAND WHITE; TISSUE=Smooth muscle;
 RX MEDLINE=93343209; PubMed=8342599;
 RA Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Llan G.;
 RT "Elevated expression of basic fibroblast growth factor in an immortalized rabbit smooth muscle cell line."
 RL Am. J. Pathol. 143:518-527(1993).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC EMBL: L12034; AAA31248.1; -
 DR HSSP: P09038; 1BFF.
 DR InterPro: IPR002209; HBGF_FGF.
 DR Pfam: PF00167; FGF_1.
 DR ProDom: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT PROPEP 1 9
 FT CHAIN 10 156 HEPARIN-BINDING GROWTH FACTOR 2.
 FT BINDING 10 156 HEPARIN (POTENTIAL).
 FT BINDING 117 120 HEPARIN (POTENTIAL).
 FT SEQUENCE 137 AA; 15418 MW; 0D9E457B8B8BC51 CRC64;

Query Match 46.4%; Score 287; DB 1; Length 137;
Best Local Similarity 100.0%; Pred. No. 1,8e-15;

Matches 50; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

0y 65 PALPDDGGGAFPGHFKDPRKRLKCKNGGFFLRHPDGRVDSVREKSDPH 114
1 PALPDDGGGAFPGHFKDPRKRLKCKNGGFFLRHPDGRVDSVREKSDPH 50

RESULT 9
ID FGF2_XENLA STANDARD; PRT; 155 AA.

AC P12226;
DT 01-OCT-1989 (Rel. 12, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DE 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BGF).
GN FGF2 OR FGF-2.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipridae; Pipidae;
OX Xenopodidae; Xenopus.
RN NCBI_TaxID=8355;
RP SEQUENCE FROM N.A.
RX MEDLINE=9058621; Pubmed=3194757;
RA Kimmelman D., Abraham J., Haaparanta T., Palist T., Kirschner M.;
RT "The presence of fibroblast growth factor in the frog egg: its role as a natural mesoderm inducer."
RL Science 242:1053-1056(1988).
RN [2]
RP SEQUENCE OF 95-155 FROM N.A.
RX MEDLINE=88052890; Pubmed=3479265;
RA Kimmelman D., Kirschner M.;
RT "Synthetic induction of mesoderm by FGF and TGF-beta and the identification of an mRNA coding for FGF in the early Xenopus embryo."
RL Cell 51:869-877(1987).

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

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CC EMBL: M18067; AAA49726.1; -
DR PIR: A29618; A29618.
DR PIR: A40117; A40117.
DR HSSP: P09038; 1BFF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 155 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 27 31 HEPARIN (POTENTIAL).
FT BINDING 116 119 HEPARIN (POTENTIAL).
FT CONFLICT 111 111 MISSING (IN REF. 2).
SQ SEQUENCE 155 AA; 17241 MW; 036735C8063142FD CRC64;

Query Match 39.4%; Score 244; DB 1; Length 155;
Best Local Similarity 78.0%; Pred. No. 3.4e-12;
Matches 46; Conservative 3; Mismatches 10; Indels 0; Gaps 0;

0y 56 MAAGSITLPLPDDGGGAFPGHFKDPRKRLKCKNGGFFLRHPDGRVDSVREKSDPH 114
1 MAAGSITLPLPDDGGGAFPGHFKDPRKRLKCKNGGFFLRHPDGRVDSVREKSDPH 59

RESULT 10
ID FGF1_PIG STANDARD; PRT; 152 AA.

AC P20002;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DE 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (Alpha-endothelial cell growth factor) (Fragment).
GN FGF1 OR FGF-1.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suidae; Suidae; Sus.
OX NCBI_TaxID=9823;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=92062117; Pubmed=1719973;
RA Schmidt M., Sharma H.S., Schott R.J., Schaper W.;
RT "Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (afgf) from porcine heart."
RL Biochem. Biophys. Res. Commun. 180:853-859(1991).
RN [2]
RP SEQUENCE OF 22-41.
RX MEDLINE=89231704; Pubmed=2714282;
RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethke N.,
RT "Isolation of heparin-binding growth factors from bovine, porcine and canine hearts."
RL Eur. J. Biochem. 181:67-73(1989).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

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CC EMBL: X60317; CAA42869.1; -
DR PIR: S03954; S03954.
DR HSSP: P05230; 2AXM.
DR InterPro: IPR002209; HBGF_FGF.
DR Pfam: PF00167; FGF; 1.
DR PRODOM: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 152 HEPARIN-BINDING GROWTH FACTOR 1.
FT BINDING 22 >152 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
FT BINDING 113 116 HEPARIN (POTENTIAL).
FT CONFLICT 31 31 HEPARIN (POTENTIAL).
FT CONFLICT 39 39 C -> S (IN REF. 2).
FT NON_TER 152 R -> Y (IN REF. 2).
SQ SEQUENCE 152 AA; 17103 MW; AE853B0A92F9ABF4 CRC64;

RP SEQUENCE OF 1-154 FROM N.A.
RX MEDLINE=94069734; PubMed=7503443;
RA Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;
RT "The expression of acidic fibroblast growth factor (heparin-binding
RT growth factor-1) and cytokine genes in human cardiac allografts and T
RT cells";
RL Transplantation 56:1177-1182(1993).
RN [8]
RN SEQUENCE OF 1-40 FROM N.A.
RP MEDLINE=90365758; PubMed=2393407;
RX Crumley G., Dionne C.A., Jaye M.;
RA "The gene for human acidic fibroblast growth factor encodes two
RT upstream exons alternatively spliced to the first coding exon";
RL Biochem. Biophys. Res. Commun. 171:7-13(1990).
RN [9]
RP SEQUENCE OF 16-155.
RX MEDLINE=86296647; PubMed=2427112;
RA Harper J.W., Strydom D.J., Lobb R.R.;
RT "Human class 3 heparin-binding growth factor: structure and homology
RL to bovine acidic brain fibroblast growth factor";
RN Biochemistry 25:4097-4103(1986).
RN [10]
RP SEQUENCE OF 16-155.
RX MEDLINE=86295741; PubMed=3527167;
RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
RT "The complete amino acid sequence of human brain-derived acidic
RL fibroblast growth factor";
RN Biochem. Biophys. Res. Commun. 138:611-617(1986).
RN [11]
RP SEQUENCE OF 16-155.
RX MEDLINE=87048871; PubMed=3778488;
RA Gautschi-Sova P., Mueller T., Boehlen P.;
RT "Amino acid sequence of human acidic fibroblast growth factor";
RL Biochem. Biophys. Res. Commun. 140:874-880(1986).
RN [12]
RP SEQUENCE OF 16-47.
RX MEDLINE=86186784; PubMed=3964259;
RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
RT "Human brain-derived acidic and basic fibroblast growth factors:
RL amino terminal sequences and specific mitogenic activities";
RN Biochem. Biophys. Res. Commun. 135:541-548(1986).
RN [13]
RP SEQUENCE OF 16-49.
RX MEDLINE=86275260; PubMed=3732516;
RA Gautschi P., Frater-Schroeder M., Boehlen P.;
RT "Partial molecular characterization of endothelial cell mitogens from
RL human brain: acidic and basic fibroblast growth factors";
RN FEBS Lett. 204:203-207(1986).
RN [14]
RP X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).
RX MEDLINE=96194129; PubMed=8652550;
RA Blaber M., Disalvo J., Thomas K.A.;
RT "X-ray crystal structure of human acidic fibroblast growth factor";
RL Biochemistry 35:2086-2094(1996).
RN [15]
RP STRUCTURE BY NMR OF 24-155.
RX MEDLINE=94358885; PubMed=7521397;
RA Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico M.,
RT Gimenez-Gallego G.;
RN "1H-NMR assignment and solution structure of human acidic fibroblast
RT growth factor activated by inositol hexasulfate";
RL J. Mol. Biol. 242:81-98(1994).
RN [16]
RP STRUCTURE BY NMR OF 24-155.
RX MEDLINE=97107535; PubMed=8950275;
RA Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J.,
RT Rico M., Gimenez-Gallego G.;
RN "Three-dimensional structure of acidic fibroblast growth factor in
RT solution: effects of binding to a heparin functional analog";
RL J. Mol. Biol. 264:162-178(1996).
RN [17]
RP STRUCTURE BY NMR OF 25-155.
RX MEDLINE=98387896; PubMed=9719643;

RA Schinurch H., Risau W.;
 RT "Differentiating and mature neurons express the acidic fibroblast
 RT growth factor gene during chick neural development.";
 RL Development 111:1143-1154(1991).
 RN 12)
 RP SEQUENCE FROM N.A.
 RA Martin G.R., Han J.K.;
 RL Submitted (JUL-1995) to the EMBL/GenBank/DBJ databases.
 RN 13)
 RP SEQUENCE OF 22-48.
 RX MEDLINE-88296438; PubMed-3402441;
 RA Risau W., Gausch-Sova P., Boehlen P.;
 RT "Endothelial cell growth factors in embryonic and adult chick brain
 RT are related to human acidic fibroblast growth factor.";
 RL EMBO J. 7:959-962(1988).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
 CC THAN DOES BFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: S63263; AAB19629.1; -;
 DR EMBL: U31863; AAA80310.1; -;
 DR EMBL: S63261; AAD13942.1; -;
 DR PIR: S02639; S02639.
 DR HSP: P05230; ZAMM.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam: PF00167; FGF. 1.
 DR PRINTS: PR00262; IL1HBGF.
 DR PRODOM: PD000831; HBGF_FGF; 1.
 DR SMART: SM00442; FGF. 1.
 DR PROSITE: PS00247; HBGF_FGF; 1.
 KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT PROPEP 1 15
 FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
 FT CHAIN 22 155 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
 FT BINDING 24 28 HEPARIN (POTENTIAL).
 FT BINDING 113 116 HEPARIN (POTENTIAL).
 FT SEQUENCE 155 AA; 17322 MW; 8BDB70545E2B4365 CRC64;
 SQ

Query Match 27.98; Score 172.5; DB 1; Length 155;
 Best Local Similarity 59.38; Pred. No. 7.7e-07;
 Matches 33; Conservative 5; Mismatches 16; Indels 3; Gaps 1;
 Qy 56 MAASITTLPLPEDGSGAPPGHFKDPKRLTKCKNGSEFLRIHPDGKVDGVRKSDPH 114
 Db 1 MAEGITITLTLTERFG---LPLGNYKPKLLYCSNGSHFLRIHPDGKVDGTRSDPH 56

RESULT 14
 FGF1_MOUSE
 ID FGF1_MOUSE STANDARD; PRT; 155 AA.
 AC P10935;
 DT 01-JUL-1989 (Rel. 11, Created)
 DT 01-JUL-1989 (Rel. 11, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
 DE growth factor) (ANGF).
 GN FGF1 OR FGF-1 OR FGFA.
 OS Mus musculus (Mouse), and

OS Rattus norvegicus (Rat).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OX NCBI_TaxID=10090, 10116;
 RN 11)
 RP SEQUENCE FROM N.A.
 RC SPECIES-Rat;
 RX MEDLINE-89240051; PubMed-2470029;
 RA Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
 RT "The nucleotide sequence of rat heparin binding growth factor 1
 RT (HBGF-1).";
 RL Nucleic Acids Res. 17:2867-2867(1989).
 RN 12)
 RP SEQUENCE FROM N.A.
 RC SPECIES-Mouse;
 RX MEDLINE-90201563; PubMed-2318343;
 RA Hedert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
 RT "Isolation of cDNAs encoding four mouse FGF family members and
 RT characterization of their expression patterns during embryogenesis.";
 RL Dev. Biol. 138:454-463(1990).
 RN 13)
 RP SEQUENCE FROM N.A.
 RC SPECIES-Mouse;
 RX MEDLINE-97128312; PubMed-8972905;
 RA Medial F., Hackshaw K.V., Chiu I.M.;
 RT "Cloning and characterization of the mouse Fgf-1 gene.";
 RL Gene 179:231-236(1996).
 RN 14)
 RP SEQUENCE FROM N.A.
 RC SPECIES-Mouse; STRAIN-BALB/C;
 RX MEDLINE-97094746; PubMed-8939980;
 RA Altm K.V., Frostholt A., Hackshaw K.V., Evans J.E., Rotter A.,
 RA Chiu I.M.;
 RT "Characterization of the 1b promoter of fibroblast growth factor 1
 RT and its expression in the adult and developing mouse brain.";
 RL J. Biol. Chem. 271:30263-30271(1996).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC -----
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 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: X14232; CAA32448.1; -;
 DR EMBL: M30641; AAA37618.1; -;
 DR EMBL: U36457; AAC52969.1; -;
 DR EMBL: U36457; AAC52969.1; JOINED.
 DR EMBL: U36458; AAC52969.1; JOINED.
 DR EMBL: U67610; AAC52907.1; -;
 DR PIR: S04147; S04147.
 DR PIR: D37360; D37360.
 DR HSP: P05230; IRLM.
 DR MGD: MGI:95515; Fgf1.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam: PF00167; FGF. 1.
 DR PRINTS: PR00262; IL1HBGF.
 DR PRODOM: PD000831; HBGF_FGF; 1.
 DR SMART: SM00442; FGF. 1.
 DR PROSITE: PS00247; HBGF_FGF; 1.
 KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT PROPEP 1 15
 FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
 FT CHAIN 24 28 HEPARIN (POTENTIAL).
 FT BINDING 113 116 HEPARIN (POTENTIAL).
 FT SEQUENCE 113 116

50 SEQUENCE 155 AA; 17418 MW; 8880E4F0FBAA161 CRC64;

Query Match 26.4%; Score 163.5; DB 1; Length 155;
Best Local Similarity 57.6%; Pred. No. 3.6e-06;
Matches 34; Conservative 4; Mismatches 18; Indels 3; Gaps 1;

QY 56 MAAGSITLPLAPEGSGAPPPGPHKPKRKYCKNGGFFLHHPDGRVGVREKSDPH 114
DB 1 MAEGITLPAALTERN---LPLGNYKKRKLKLYCSNGHFLRLPDGTVDGTRDSDDH 56

RESULT 15

FCGL_BOVIN
ID FCGL_BOVIN STANDARD; PRT; 155 AA.
AC P03968;
DT 23-OCT-1986 (Rel. 02, Created)
DT 01-MAR-1989 (Rel. 10, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (acidic fibroblast growth factor) (AFGF) (Prostatropin) (Endothelial cell growth factor beta and alpha chains) (Acidic eye-derived growth factor II) (EDGF II).
GN FGF1 OR FGF-1 OR FGFR OR HBGF-1 OR AFGF.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID:9913;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-Retina;
RX MEDLINE-89083506; PubMed-3205724;
RA Hally C., Courtois Y., Laurent M.;
RT "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA.";
RL Nucleic Acids Res. 16:10913-10913(1988).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE-Retina;
RX MEDLINE-89078619; PubMed-2849564;
RA Alterio J., Hally C., Bron C., Soussi T., Courtois Y., Laurent M.;
RT "Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina.";
RL FEBS Lett. 242:41-46(1988).
RN [3]
RP SEQUENCE OF 2-155.
RX MEDLINE-87016918; PubMed-3532107;
RA Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., Maciag T.;
RT "Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor.";
RL Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
RN [4]
RP SEQUENCE OF 2-155.
RX MEDLINE-87026586; PubMed-3768327;
RA Crabb J.W., Ames L.G., Carr S.A., Johnson C.M., Roberts G.D., Bordoli R.S., McKeenan W.L.;
RT "Complete primary structure of prostatropin, a prostate epithelial cell growth factor.";
RL Biochemistry 25:4988-4993(1986).
RN [5]
RP SEQUENCE OF 16-155.
RX MEDLINE-86070224; PubMed-4071057;
RA Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelero M., Disalvo J., Thomas K.;
RT "Brain-derived acidic fibroblast growth factor: complete amino acid sequence and homologies.";
RL Science 230:1385-1388(1985).
RN [6]
RP SEQUENCE OF 16-44, AND COMPOSITION.
RX MEDLINE-86055750; PubMed-4065099;
RA Boehlen P., Esch F., Baird A., Gospodarowicz D.;
RT "Acidic fibroblast growth factor (FGF) from bovine brain:

RT amino-terminal sequence and comparison with basic FGF.";
RL EMBL J. 4:1951-1956(1985).
RN [7]
RP SEQUENCE OF 16-56 FROM N.A.
RX MEDLINE-86261806; PubMed-2425435;
RA Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;
RT "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";
RL Science 233:545-548(1986).
RN [8]
RP SEQUENCE OF 16-45.
RX MEDLINE-89231704; PubMed-2714282;
RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethke N., Sharma H.S., Schaper W.;
RT "Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.";
RL Eur. J. Biochem. 181:67-73(1989).
RN [9]
RP SEQUENCE OF 1-18 FROM N.A.
RA Philippe J.M., Renaud F., Desset S., Laurent M.;
RT Submitted (JUL-1992) to the EMBL/Genbank/DBJ databases.
RN [10]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RX MEDLINE-91095983; PubMed-1702556;
RA Zhu X., Komiyama H., Chirino A., Faham S., Fox G.M., Arakawa T., Hsu B.T., Rees D.C.;
RT "Three-dimensional structures of acidic and basic fibroblast growth factors.";
RL Science 251:90-93(1991).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC
DR EMBL: M13439; AAA30516.1;
DR EMBL: X13221; CAA31610.1;
DR EMBL: X14032; CAA32192.1;
DR EMBL: M35608; AAA30517.1;
DR EMBL: X66446; CAA47063.1;
DR EMBL: M97660; AAA30563.1;
DR EMBL: M97661; AAA30564.1;
DR PIR: A01385; GKBOA.
DR PIR: A25043; A25043.
DR PIR: B25043; B25043.
DR PIR: C25043; C25043.
DR PIR: A24477; A24477.
DR PIR: B24663; B24663.
DR PIR: S02102; S02102.
DR PDB: 1BAR; 31-OCT-93.
DR PDB: 1AFC; 31-OCT-93.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR ProDom: PD000831; HBGF_FGF.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;
KW 3D-structure.
FT PROPEP 1 15

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FT CHAIN 2 155 ENDOTHELIAL CELL GROWTH FACTOR BETA.
FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
FT CHAIN 22 155 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
FT MOD RES 2 2 ACETYLATION.
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
FT STRAND 27 31
FT TURN 32 34
FT STRAND 37 40
FT TURN 42 43
FT STRAND 46 49
PT HELIX 55 57
FT STRAND 59 61
FT STRAND 69 69
FT STRAND 71 73
FT STRAND 79 82
FT TURN 84 85
FT STRAND 87 91
FT HELIX 96 98
FT STRAND 100 100
FT STRAND 103 104
FT TURN 106 107
FT STRAND 110 111
FT STRAND 113 114
FT TURN 116 121
FT STRAND 123 123
FT STRAND 126 126
FT TURN 128 129
FT STRAND 132 132
FT STRAND 134 134
FT HELIX 135 137
FT TURN 140 141
FT TURN 144 145
FT STRAND 147 150
SO SEQUENCE 155 AA; 17493 MM; F636641F189F9BFD CRC64;
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Query Match

25.9%; Score 160.5; DB 1; Length 155;
Best Local Similarity 54.2%; Pred. No. 6.1e-06;

Matches 32; Conservative 6; Mismatches 18; Indels 3; Gaps 1;

```
OY 56 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLCYCKNGGFLRIHPDGRVDGVREKSDPH 114
Db 1 MAEGETTTTALTEKEN---LPLGNTRYKKPKRLCYCSNGGYFLRLIPDGTVDGTDKDRSDQH 56
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Search completed: June 2, 2002, 18:05:15
Job time: 243 sec

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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:02:18 ; Search time 35.96 Seconds

(without alignments)
304,621 Million cell updates/sec

Title: US-09-642-277a-2

Perfect score: 619

Sequence: 1 LQDGRGRALPGRLGGRG.....FLRHDPGRVDPKRSDFH 114

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database :

1: PIR_71:***
2: PIR_71:***
3: PIR_71:***
4: PIR_71:***

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

No.	Score	Query Match	Length	DB	ID	Description
1	617	99.7	210	2	A32398	basic fibroblast g
2	352.5	56.9	189	2	A48834	basic fibroblast g
3	334	54.0	157	1	GKROB	basic fibroblast g
4	309.5	50.0	154	2	A31674	basic fibroblast g
5	297.5	48.1	164	2	S31622	basic fibroblast g
6	294.5	47.6	154	2	C37360	basic fibroblast g
7	287	46.4	137	2	I46711	basic fibroblast g
8	281	45.4	146	1	S00185	basic fibroblast g
9	244	39.4	155	1	A40117	basic fibroblast g
10	223	36.0	125	2	A32484	basic fibroblast g
11	174.5	28.2	60	2	JH0708	acidic fibroblast g
12	174.5	28.2	152	2	JH0708	acidic fibroblast g
13	173.5	28.0	155	1	A33665	acidic fibroblast g
14	173.5	28.0	155	1	A60721	acidic fibroblast g
15	172.5	27.9	155	2	JH0055	acidic fibroblast g
16	165.5	26.7	155	2	JH0055	acidic fibroblast g
17	163.5	26.4	155	2	S04147	acidic fibroblast g
18	163.5	26.4	155	2	D37360	acidic fibroblast g
19	160.5	25.9	155	1	GKBOA	acidic fibroblast g
20	121.5	19.6	1733	1	B45344	probable nuclear a
21	119	19.2	1168	1	MMAXIC	myosin heavy chain
22	118.5	19.1	641	1	Q08R31	hypothetical prote
23	110	17.8	1958	2	B40505	hypothetical prote
24	107.5	17.4	809	2	A34404	oxysterol-binding
25	107.5	17.4	1215	2	T32734	myosin-1A - Acanth
26	106.5	17.2	946	2	F88196	protein ZK1127.9
27	105	17.0	825	2	JC4163	DNA-binding protei
28	104	16.8	194	2	U50710	fibroblast growth
29	104	16.8	243	2	A96744	hypothetical prote

30	104	16.8	320	2	T09555	fibroblastin - Arab
31	103.5	16.7	305	2	T20906	hypothetical prote
32	103.5	16.7	316	2	T19288	hypothetical prote
33	103.5	16.7	369	2	F96788	protein T4012.22
34	103	16.6	203	2	JC4871	phospholipase C (E
35	102.5	16.6	1042	1	CGCHIS	collagen alpha 1(I
36	102	16.5	121	2	S68145	fibroblast growth
37	102	16.5	266	2	S68144	oxysterol-binding
38	102	16.5	807	2	A34581	protein T19E23.7
39	102	16.5	1014	2	H86438	hypothetical prote
40	101.5	16.4	316	2	T19291	hypothetical prote
41	101.5	16.4	529	2	T45134	homeobox protein H
42	100.5	16.2	373	2	A47234	glycine-rich prote
43	100	16.2	185	2	T49890	hypothetical prote
44	100	16.2	297	2	T27525	procollagen type V
45	100	16.2	1497	2	T49607	

ALIGNMENTS

RESULT 1

A32398

basic fibroblast growth factor precursor, 22.5K form - human

N:Alternate names: bFGF; fibroblast growth factor 2; prostatic growth factor; prosta

C:Species: Homo sapiens (man)

C>Date: 31-Jul-1989 #sequence, revision 31-Dec-1993 #text, change 21-Jul-2000

C:Accession: A32398; A61537; A26642; B32878; S00297; A54316; B54316; A33624; A25824

R:Prats, H.; Kagnad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Lianzun, P.; Cha

Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989

A>Title: High molecular mass forms of basic fibroblast growth factor are initiated

A:Reference number: A32398; MUID:89184522

A:Accession: A32398

A:Molecule type: mRNA

A:Residues: 1-210 <PRA>

A:Cross-references: GB:J04513; NID:q183083; PIDN:AAA52531.1; PID:q459811

R:Shibata, F.; Baird, A.; Florkiewicz, R.Z.

Growth Factors 4, 277-287, 1991

A>Title: Functional characterization of the human basic fibroblast growth factor ge

A:Reference number: A61537; MUID:92110035

A:Accession: A61537

A:Molecule type: DNA

A:Residues: 1-114 <SHI>

A>Note: authors translated the codon GGA for residue 47 as Ala

R:Kurokawa, T.; Sasada, R.; Iwano, M.; Igarashi, K.

FEBS Lett. 213, 189-194, 1987

A>Title: Cloning and expression of cDNA encoding human basic fibroblast growth fact

A:Reference number: A26642; MUID:87162468

A:Accession: A26642

A:Molecule type: mRNA

A:Residues: 56-210 <KUR>

A:Cross-references: GB:M7968; NID:q182562; PIDN:AAA52448.1; PID:q182563

R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Merz, A.; Fiddes, J.C.

Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986

A>Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organiz

A:Reference number: A90924; MUID:87217066

A:Accession: B32878

A:Molecule type: mRNA

A:Residues: 56-210 <ABR>

A>Note: the authors translated the codon GAA for residue 108 as Gly

R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Merz, A.; Fiddes, J.C.

EMBO J. 5, 2523-2528, 1986

A>Title: Human basic fibroblast growth factor: nucleotide sequence and genomic orga

A:Reference number: S00297; MUID:87053817

A:Accession: S00297

A>Status: not compared with conceptual translation

A:Molecule type: DNA

A:Residues: 1-155 <AB2>

A>Note: the authors translated the codon GAA for residue 108 as Gly

R:Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.

Jpn. J. Cancer Res. 82, 1263-1270, 1991

A>Title: Characterization of high-molecular-mass forms of basic fibroblast growth fa

iclnogenesis.
A:Reference number: A54316; MUID:92091228
A:Accession: A54316
A:Molecule type: protein
A:Residues: 7'XX',86-88,'X',90-91,'X',93-95 <SH3>
A:Note: sequence extracted from NCBI backbone (NCBIP:71595)
A:Accession: B54316
A:Molecule type: protein
A:Residues: 'XXX',19,'X',21-29 <SH2>
A:Note: sequence extracted from NCBI backbone (NCBIP:71594)
R:Feige, J.J.; Bradley, J.D.; Frydberg, K.; Farris, J.; Cousins, L.C.; Barr, P.J.; Baird, J. Cell Biol. 109, 3105-3114, 1989
A:Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylation of
A:Accession: A33624; MUID:90078343
A:Accession: A33624
A:Status: preliminary
A:Molecule type: protein
A:Residues: 57-210 <PEI>
R:Storj, M.T.; Esch, F.; Shimazaki, S.; Sasase, J.; Jacobs, S.C.; Lawson, R.K.
Biochem. Biophys. Res. Commun. 142, 702-709, 1987
A:Title: Amino-terminal sequence of a large form of basic fibroblast growth factor isolated
A:Reference number: A25624; MUID:87156686
A:Accession: A25624
A:Molecule type: protein
A:Residues: 57-77 <STO>
A:Experimental source: prostate
R:Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
Biochem. Biophys. Res. Commun. 135, 541-548, 1986
A:Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal
A:Reference number: A90122; MUID:86186784
A:Accession: B24243
A:Molecule type: protein
A:Residues: 65-102,'X',104-105 <GIN>
A:Experimental source: brain
R:Gautschi, P.; Frater-Schroder, M.; Bohlen, P.
FEBS Lett. 204, 203-207, 1986
A:Title: Partial molecular characterization of endothelial cell mitogens from human brain
A:Reference number: A91364; MUID:86275260
A:Accession: B24301
A:Molecule type: protein
A:Residues: 65-86,'X',90-98,'X',100 <GAN>
R:Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.
Biochem. Biophys. Res. Commun. 144, 543-550, 1987
A:Title: A form of human basic fibroblast growth factor with an extended amino terminus
A:Reference number: S42242; MUID:87213238
A:Accession: S42242
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 54-210 <SON>
A:Cross-references: EMBL:M17599; NID:G183086; PTDN:AA52534.1; PID:G183087
R:Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.
Biochemistry 33, 10229-10248, 1994
A:Title: Multivalent ligand-receptor binding interactions in the fibroblast growth factor
A:Reference number: A55784; MUID:94347757
A:Accession: B55784
A:Molecule type: protein
A:Residues: 54-71 <PAN>
R:Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.
Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992
A:Title: Reverse transcription with nested polymerase chain reaction shows expression of
clients.
A:Reference number: I52267; MUID:93038590
A:Accession: I52267
A:Status: preliminary; translated from GB/EMBL/DDMBJ
A:Molecule type: mRNA
A:Residues: 95-182 <RES>
A:Cross-references: GB:S47380; NID:9256535; PIDN:AAJ13853.1; PID:94261553
A:Experimental source: granulosa cells
R:Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H.
FEBS Lett. 349, 23-28, 1994
A:Title: Purification and characterization of the 210-amino acid recombinant basic fibro
A:Reference number: S46253; MUID:94320639

A:Accession: S46253
A:Molecule type: protein
A:Residues: 39-53;65-88 <PAT>
A:Note: recombinant gene expressed in Escherichia coli
C:Genetics:
A:Gene: GDB:FCF2; FCFB
A:Cross-references: GDB:119910; OMIM:134920
A:Map position: 4q25-4q27
A:Start codon: CUG
C:Superfamily: fibroblast growth factor
C:Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; m
F:1-210/Product: basic fibroblast growth factor, 22.5K form #status predicted <MA2>
F:65-210/Product: basic fibroblast growth factor, 18K form #status predicted <MA2>
F:82-86/Region: heparin binding #status predicted
F:171-174/Region: heparin binding #status predicted

Query Match 99.7% Score 617; DB 2; Length 210;
Best Local Similarity 99.1% Pred. No. 2,1e-40;
Matches 113; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 LGDRGRALPGRLGGRGRAPERYGGRGRTAAPRAAPARASRPDPACTMAAGS 60
DB 1 MGDRGRALPGRLGGRGRAPERYGGRGRTAAPRAAPARASRPDPACTMAAGS 60
OY 61 ITTLPALPEDGSGAPPPGHRKRLYCKNGFFLRHPDGRVDGVRKSDPH 114
DB 61 ITTLPALPEDGSGAPPPGHRKRLYCKNGFFLRHPDGRVDGVRKSDPH 114

RESULT 2
A48834
basic fibroblast growth factor - chicken
C:Species: Gallus gallus (chicken)
C:Date: 01-Dec-1993 #sequence-revision 18-Nov-1994 #text-change 16-Jul-1999
C:Accession: A48834; S23636
R:Borla, A.Z.; Meijers, C.; Zeller, R.
Dev. Biol. 157, 110-116, 1993
A:Title: Expression of alternatively spliced bFGF first coding exons and antisense m
A:Reference number: A48834; MUID:93246053
A:Accession: A48834
A:Status: preliminary
A:Molecule type: nucleic acid
A:Residues: 1-189 <BOR>
A:Experimental source: embryo
A:Note: sequence extracted from NCBI backbone (NCBIN:131000, NCBIP:131001)
R:Mitrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
Development 109, 387-393, 1990
A:Title: Fibroblast growth factor during mesoderm induction in the early chick embryo
A:Reference number: S23636; MUID:90382254
A:Accession: S23636
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 95-128 <MIT>
A:Cross-references: EMBL:X56804; NID:962855; PIDN:CAA0139.1; PID:962856
C:Superfamily: fibroblast growth factor

Query Match 56.9% Score 352.5; DB 2; Length 189;
Best Local Similarity 76.9% Pred. No. 2.9e-20;
Matches 70; Conservative 2; Mismatches 12; Indels 7; Gaps 2;

OY 31 GRGRTAAPRAAPARG-SRPFAGTM-----AAGSITTLPALPEDGSGAPPPGHRK 83
DB 3 GRGRTAAPRAAPARG-SRPFAGTM-----AAGSITTLPALPEDGSGAPPPGHRK 83
OY 84 PKRLYCKNGFFLRHPDGRVDGVRKSDPH 114
DB 63 PKRLYCKNGFFLRHPDGRVDGVRKSDPH 93

RESULT 3
GKBOB

basic fibroblast growth factor precursor - bovine (fragment)
 N:Alternate names: bFGF, kidney-derived growth factor; prostaltropin
 C:Species: Bos primigenius taurus (cattle)
 C>Date: 13-Aug-1986 #sequence, revision 02-Jun-1995 #text, change 24-Nov-1999
 C:Accession: A24663; A32878; A33784; A61551; A60310; A61094; A01386; A60316; A22
 R:Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumbolo, A.; Friedman, J.; Hjertild, K.A.; Gosh
 Science 233, 545-548, 1986
 A>Title: Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fi
 A:Reference number: A94290; MUID:86261806
 A:Accession: A24663
 A:Molecule type: mRNA
 A:Residues: 3-157 <ABR>
 A:Cross-references: GB:M13440; NID:9163049; PIDN:AAA30518.1; PID:9163050
 A:Experimental source: pituitary gland
 R:Abraham, J.A.; Whang, J.L.; Tumbolo, A.; Mergia, A.; Fiddes, J.C.
 Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986
 A>Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organization
 A:Reference number: A90924; MUID:87217066
 A:Accession: A32878
 A:Molecule type: mRNA
 A:Residues: 3-157 <AB2>
 R:Miller, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.
 Biochem. Biophys. Res. Commun. 165, 1096-1103, 1989
 A>Title: A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purifica
 A:Reference number: A33784; MUID:90121211
 A:Accession: A33784
 A:Molecule type: protein
 A:Residues: 1-14 <MIL>
 A>Note: demonstration of a possible alternative initiator or splice junction
 R:Bertolini, J.; Hearn, M.T.W.
 Mol. Cell. Endocrinol. 51, 187-199, 1987
 A>Title: Isolation, characterization and tissue localization of an N-terminal-truncated
 A:Reference number: A61550; MUID:87247652
 A:Accession: A61550
 A:Molecule type: protein
 A:Residues: 16-35 <BER>
 R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
 Mol. Cell. Endocrinol. 49, 189-194, 1987
 A>Title: Isolation and partial characterization of basic fibroblast growth factor from h
 A:Reference number: A61551; MUID:87162856
 A:Accession: A61551
 A:Molecule type: protein
 A:Residues: 27-35, 'X', 37-41 <UE3>
 A:Experimental source: testes
 A>Note: this form appears to be identical to the renal form
 R:Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.; Guillemin, R.
 Regul. Pept. 16, 135-145, 1986
 A>Title: Purification and partial characterization of a mitogenic factor from bovine liv
 A:Reference number: A60310; MUID:87119165
 A:Accession: A60310
 A:Molecule type: protein
 A:Residues: 23-35, 'X', 37-42 <UEN>
 A:Experimental source: liver
 R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
 Biochem. Biophys. Res. Commun. 138, 580-588, 1986
 A>Title: Isolation of an amino terminal extended form of basic fibroblast growth factor.
 A:Reference number: A24819; MUID:86295737
 A:Contents: annotation
 A>Note: the amino end of this form was blocked; the peptide composition matched what was
 R:Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.; Bohlen, P.
 Endocrinology 118, 82-90, 1986
 A>Title: Isolation of fibroblast growth factor from bovine adrenal gland: physicochemica
 A:Reference number: A61094; MUID:86081530
 A:Accession: A61094
 A:Molecule type: protein
 A:Residues: 12-25, 27-35, 'X', 37-40 <GOS>
 A:Experimental source: adrenal gland
 R:Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodar
 Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985
 A>Title: Primary structure of bovine pituitary basic fibroblast growth factor (bFGF) and
 A:Reference number: A01386; MUID:86016731
 A:Accession: A01386
 A:Molecule type: protein

A:Residues: 12-157 <ESC>
 A:Experimental source: pituitary gland
 R:Baird, A.; Esch, F.; Bohlen, P.; Ling, N.; Gospodarowicz, D.
 Regul. Pept. 12, 201-213, 1985
 A>Title: Isolation and partial characterization of an endothelial cell growth facto
 A:Reference number: A60316; MUID:86095426
 A:Accession: A60316
 A:Molecule type: protein
 A:Residues: 27-35, 'X', 37-43 <BAI>
 A:Experimental source: kidney
 R:Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
 Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984
 A>Title: Isolation and partial molecular characterization of pituitary fibroblast g
 A:Reference number: A22054; MUID:84298139
 A:Accession: A22054
 A:Molecule type: protein
 A:Residues: 12-26 <BOH>
 C:Comment: The acidic and basic fibroblast growth factors are the major endothelial
 cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulat
 C:Comment: This protein binds heparin more strongly than does aFGF.
 C:Superfamily: fibroblast growth factor
 C:Keywords: alternative splicing; angiogenesis; blocked amino end; growth factor; h
 F:1-157/Product: basic fibroblast growth factor, uterine form #status predicted <MA
 F:4-157/Product: basic fibroblast growth factor, pituitary gamma form #status exper
 F:12-157/Product: basic fibroblast growth factor, pituitary alpha form #status exper
 F:16-157/Product: basic fibroblast growth factor, pituitary short form #status pred
 F:23-157/Product: basic fibroblast growth factor, hepatic form #status predicted
 F:27-157/Product: basic fibroblast growth factor, renal form #status experimental
 F:29-33, 118-121/Region: heparin binding #status predicted
 F:4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma) (probab
 Query Match 54.0%; Score 334; DB 1; Length 157;
 Best Local Similarity 98.4%; Pred. No. 6, 3e-19;
 Matches 60; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 QY 54 GTMAAGSTTTLPALPDGSGAAPPFGHFKDPKRYCKNGGFFLRHHPDGRVGRKSPD 113
 1 |||||
 DB 1 GMAAGSITTLRALPDGSGAAPPFGHFKDPKRYCKNGGFFLRHHPDGRVGRKSPD 60
 QY 114 H 114
 DB 61 H 61
 RESULT 4
 A31674
 basic fibroblast growth factor precursor - rat
 N:Alternate names: bFGF
 C:Species: Rattus norvegicus (Norway rat)
 C>Date: 21-May-1990 #sequence, revision 21-May-1990 #text, change 16-Jul-1999
 C:Accession: A31674; S00876; S24309
 R:Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird,
 Biochem. Biophys. Res. Commun. 157, 256-263, 1988
 A>Title: Complementary DNA cloning and sequencing of rat ovarian basic fibroblast g
 A:Reference number: A31674; MUID:89061721
 A:Accession: A31674
 A:Molecule type: mRNA
 A:Residues: 1-154 <SHI>
 A:Cross-references: GB:M22427; NID:9204285; PIDN:AAA41210.1; PID:9204286
 R:Kurokawa, T.; Seno, M.; Igashiri, K.
 Nucleic Acids Res. 16, 5301, 1988
 A>Title: Nucleotide sequence of rat basic fibroblast growth factor cDNA.
 A:Reference number: S00876; MUID:88262516
 A:Accession: S00876
 A:Molecule type: mRNA
 A:Residues: 1-154 <KUR>
 A:Cross-references: EMBL:X07285; NID:956203; PIDN:CAA30265.1; PID:956204
 R:El-Husseini, A.E.D.; Paterson, J.A.; Wyal, Y.; Shiu, R.P.C.
 Biochim. Biophys. Acta 1131, 314-316, 1992
 A>Title: PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA
 A:Reference number: S24309; MUID:92329546
 A:Accession: S24309

A:Status: preliminary; translation not shown

A:Molecule type: mRNA

A:Residues: 35-154 <ELH>

A:Cross-references: EMBL:X61697; NID:g56143; PIDN:CAA3863.1; PID:g56144

C:Superfamily: fibroblast growth factor

C:Keywords: growth factor

F:1-9/Domain: signal sequence #status predicted <SIG>

F:10-154/Product: basic fibroblast growth factor #status predicted <MAT>

Query Match 50.0%; Score 309.5; DB 2; Length 154;
Best Local Similarity 96.6%; Pred. No. 4.6e-17;
Matches 57; Conservative 1; Mismatches 0; Indels 1; Gaps 1;

56 MAAGSTTLPALPEDGSGAFPPGHFKDPKRLCYCKNGGFLLRHDPGRVGVREKSDPH 114
1 MAAGSTTLPALPEDGSGAFPPGHFKDPKRLCYCKNGGFLLRHDPGRVGVREKSDPH 58

RESULT 5
S31622
basic fibroblast growth factor - short-tailed opossum (Monodelphis domestica) (fragment)
C:Species: Monodelphis domestica
C:Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 12-Apr-1995
C:Accession: S31622
R:Kuswilt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D.
submitted to the EMBL Data Library, September 1992
A:Description: Characterization of cDNA encoding basic fibroblast growth factor of the m
A:Reference number: S31622
A:Accession: S31622
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-164 <KUS>
A:Cross-references: EMBL:Z15154
C:Superfamily: fibroblast growth factor

Query Match 48.1%; Score 297.5; DB 2; Length 164;
Best Local Similarity 81.7%; Pred. No. 4e-16;
Matches 58; Conservative 3; Mismatches 5; Indels 5; Gaps 2;

45 ARGRPPAGTMAAGSTTLPALPEDGSGAFPPGHFKDPKRLCYCKNGGFLLRHDPGR 103
2 SRGSSVG---MAAGSTTLPALPEDGSGAFPPGHFKDPKRLCYCKNGGFLLRHDPGR 57

104 VDGVRKSDPH 114
58 VDGVRKSDPH 68

RESULT 6
C37360
basic fibroblast growth factor - mouse
C:Species: Mus musculus (house mouse)
C:Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
C:Accession: C37360
R:Hebert, J.M.; Basillio, C.; Goldfarb, M.; Haub, O.; Martin, G.R.
Dev. Biol. 138, 454-463, 1990
A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization
A:Reference number: A37360; MUID:90201563
A:Accession: C37360
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-154 <HEB>
A:Cross-references: GB:M30644; NID:g193296; PIDN:AAA37621.1; PID:g309239
C:Superfamily: fibroblast growth factor

Query Match 47.6%; Score 294.5; DB 2; Length 154;
Best Local Similarity 91.5%; Pred. No. 6.4e-16;
Matches 54; Conservative 2; Mismatches 2; Indels 1; Gaps 1;

DB 1 MAAGSTTLPALPEDGSGAFPPGHFKDPKRLCYCKNGGFLLRHDPGRVGVREKSDPH 58

RESULT 7

146711 fibroblast growth factor - rabbit (fragment)

C:Species: Oryctolagus cuniculus (domestic rabbit)

C:Date: 14-Feb-1997 #sequence_revision 14-Feb-1997 #text_change 16-Jul-1999

C:Accession: 146711

R:Winkles, J.A.; Friesel, R.; Alberts, G.F.; Janat, M.F.; Liao, G.

Am. J. Pathol. 143, 518-527, 1993

A:Title: Elevated expression of basic fibroblast growth factor in an immortalized r

A:Reference number: 146711; MUID:93343209

A:Accession: 146711

A:Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-137 <MIN>

A:Cross-references: GB:LI2034; NID:g165014; PIDN:AAA31248.1; PID:g165015

C:Superfamily: fibroblast growth factor

Query Match 46.4%; Score 287; DB 2; Length 137;
Best Local Similarity 100.0%; Pred. No. 2.2e-15;
Matches 50; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

65 PALPEDGSGAFPPGHFKDPKRLCYCKNGGFLLRHDPGRVGVREKSDPH 114
1 PALPEDGSGAFPPGHFKDPKRLCYCKNGGFLLRHDPGRVGVREKSDPH 50

RESULT 8
S00185
basic fibroblast growth factor - sheep
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C:Date: 10-Sep-1989 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
C:Accession: S00185
R:Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabri, L.D.; Nice, E.C.; Rubira, M.R.; E
FEBS Lett. 224, 128-132, 1987
A:Title: Primary structure of ovine pituitary basic fibroblast growth factor.
A:Reference number: S00185; MUID:88055577
A:Accession: S00185
A:Molecule type: protein
A:Residues: 1-146 <SIM>
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor; heparin binding; mitogen
F:18-22/Region: heparin binding #status predicted
F:107-110/Region: heparin binding #status predicted

Query Match 45.4%; Score 281; DB 1; Length 146;
Best Local Similarity 98.0%; Pred. No. 6.6e-15;
Matches 49; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

65 PALPEDGSGAFPPGHFKDPKRLCYCKNGGFLLRHDPGRVGVREKSDPH 114
1 PALPEDGSGAFPPGHFKDPKRLCYCKNGGFLLRHDPGRVGVREKSDPH 50

RESULT 9

A40117 basic fibroblast growth factor - African clawed frog

C:Species: Xenopus laevis (African clawed frog)

C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999

C:Accession: A40117; A29618

R:Kimmel, D.; Abraham, J.A.; Haaparanta, T.; Palisi, T.M.; Kirschner, M.W.

Science 242, 1053-1056, 1998

A:Title: The presence of fibroblast growth factor in the frog egg: its role as a nat

A:Reference number: A40117; MUID:89058621

A:Accession: A40117

A:Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-155 <KIN>
 A:Cross-references: GB:M18067; NID:g214177; PIDN:AAA9726.1; PID:g214178; GB:M21092
 R:Klimelman, D.; Kirschner, M.
 Cell 51, 869-877, 1987
 A:Title: Synergistic Induction of mesoderm by FGF and TGF-beta and the identification of
 A:Reference number: A29618; MUID:88052890
 A:Accession: A29618
 A:Molecule type: mRNA
 A:Residues: 95-110,112-155 <K12>
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor

Query Match 39.4%; Score 244; DB 1; Length 155;
 Best Local Similarity 78.0%; Pred. No. 4,6e-12;
 Matches 46; Conservative 3; Mismatches 10; Indels 0; Gaps 0;

Qy 56 MAAGSITTLPALPEDGSGAPPGHFKDPKRLKCKNGGFELRHDPGRVGVREKSDPH 114
 Db 1 MAAGSITTLPESEDEGNTPEPSGFKDPKRLKCKNGGFELRHDPGRVGVREKSDPH 59

RESULT 10
 A32484
 basic fibroblast growth factor precursor, 25K - guinea pig (fragments)
 C:Species: Cavia porcellus (guinea pig)
 C:Date: 20-Oct-1989 #sequence_revision 20-Oct-1989 #text_change 15-Jun-1996
 C:Accession: A32484
 R:Sommer, A.; Moscatelli, D.; Rifkin, D.B.
 Biochem. Biophys. Res. Commun. 160, 1267-1274, 1989
 A:Title: An amino-terminally extended and post-translationally modified form of a 25KD h
 A:Reference number: A32484; MUID:89273588
 A:Accession: A32484
 A>Status: preliminary; nucleic acid sequence not shown; not compared with conceptual tra
 A:Molecule type: mRNA
 A:Residues: 1-125 <SOM>
 C:Superfamily: fibroblast growth factor

Query Match 36.0%; Score 223; DB 2; Length 125;
 Best Local Similarity 65.3%; Pred. No. 1.5e-10;
 Matches 47; Conservative 2; Mismatches 9; Indels 14; Gaps 2;

Qy 27 VGGRGGRGTAPAAPAARGSRPGATMAAGSITTLPALPEDGSGAPPGHFKDPKR 86
 Db 1 VGGRGGRGTAA-----AARREPGAMAGSITTLPALPEDGSGAPPGHFKDP-- 50

Qy 87 LYCKNGGFELRI 98
 Db 51 ----NGGFELRL 58

RESULT 11
 JH0708
 fibroblast growth factor 1 precursor, splice form aFGF - human
 N:Alternate names: acidic fibroblast growth factor aFGF
 C:Species: Homo sapiens (man)
 C:Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
 C:Accession: JH0708
 R:Yu, Y.L.; Kha, H.; Golden, J.A.; Mischelisen, A.A.J.; Goetzl, E.J.; Turk, C.W.
 J. Exp. Med. 175, 1073-1080, 1992
 A:Title: An acidic fibroblast growth factor protein generated by alternate splicing act
 A:Reference number: JH0707; MUID:92202857
 A:Accession: JH0708
 A:Molecule type: mRNA
 A:Residues: 1-60 <YUY>
 A:Cross-references: GB:X65779; NID:g396165; PIDN:CAA6662.1; PID:g396166
 C:Genetics:
 A:Gene: GDB:FGF1, FGFA
 A:Cross-references: GDB:119909; OMIM:131220
 A:Map position: 5q31.3-5q33.2
 C:Superfamily: fibroblast growth factor
 C:Keywords: alternative splicing; growth factor

Query Match 28.2%; Score 174.5; DB 2; Length 60;
 Best Local Similarity 59.3%; Pred. No. 4.2e-07;
 Matches 35; Conservative 4; Mismatches 17; Indels 3; Gaps 1;

Qy 56 MAAGSITTLPALPEDGSGAPPGHFKDPKRLKCKNGGFELRHDPGRVGVREKSDPH 114
 Db 1 MAAGSITTLALTEKFN---LPPGNTKPKLLKCSNGGFELRHDPGRVGVREKSDPH 56

RESULT 12
 JH0476
 acidic fibroblast growth factor - pig (fragment)
 C:Species: Sus scrofa domestica (domestic pig)
 C:Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 16-Jul-1999
 C:Accession: JH0476; S20072
 R:Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W.
 Biochem. Biophys. Res. Commun. 180, 853-859, 1991
 A:Title: Amplification and sequencing of mRNA encoding acidic fibroblast growth fac
 A:Reference number: JH0476; MUID:92062117
 A:Accession: JH0476
 A:Molecule type: mRNA
 A:Residues: 1-152 <SCH>
 A:Cross-references: EMBL:X60317; NID:g1873; PIDN:CAA42869.1; PID:g1874
 A:Experimental source: heart
 A>Note: the hydrophobic core residues are packed around the internal symmetry axis
 C:Comment: This protein belongs to the fibroblast growth factor family.
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor; heparin binding
 F:22-28/Region: nuclear location signal
 F:133/Binding site: heparin (Lys) #status predicted

Query Match 28.2%; Score 174.5; DB 2; Length 152;
 Best Local Similarity 59.3%; Pred. No. 9.1e-07;
 Matches 35; Conservative 4; Mismatches 17; Indels 3; Gaps 1;

Qy 56 MAAGSITTLPALPEDGSGAPPGHFKDPKRLKCKNGGFELRHDPGRVGVREKSDPH 114
 Db 1 MAAGSITTLALTEKFN---LPPGNTKPKLLKCSNGGFELRHDPGRVGVREKSDPH 56

RESULT 13
 A33665
 acidic fibroblast growth factor 1 precursor [validated] - human
 N:Alternate names: beta-ECGF; endothelial cell growth factor beta; heparin-binding
 C:Species: Homo sapiens (man)
 C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 08-Dec-2000
 C:Accession: A33665; S18217; A43804; A24662; JH0707; S35535; S35536; I39413;
 R:Merz, A.; Tischer, E.; Graves, D.; Tumolo, A.; Miller, J.; Gospodarowicz, D.; Al
 Biochem. Biophys. Res. Commun. 164, 1121-1129, 1989
 A:Title: Structural analysis of the gene for human acidic fibroblast growth factor.
 A:Reference number: A33665; MUID:90073637
 A:Accession: A33665
 A:Molecule type: DNA
 A:Residues: 1-155 <MER>
 A:Cross-references: GB:M30491
 R:Wang, W.P.; Lehman, K.; Varban, M.L.; Krishnan, I.; Chiu, I.M.
 Mol. Cell. Biol. 9, 2387-2395, 1989
 A:Title: Cloning of the gene coding for human class I heparin-binding growth factor
 A:Reference number: A33316; MUID:89343957
 A:Accession: A33316
 A:Molecule type: DNA
 A:Residues: 1-155 <WAN>
 A:Cross-references: GB:M23087; NID:g183875; PIDN:AAA52638.1; PID:g386768
 R:Wang, W.P.; Quick, D.; Balcerzak, S.P.; Needleman, S.W.; Chiu, I.M.
 Oncogene 6, 1521-1529, 1991
 A:Title: Cloning and sequence analysis of the human acidic fibroblast growth factor
 A:Reference number: S18217; MUID:92019819
 A:Accession: S18217
 A:Molecule type: DNA
 A:Residues: 1-155 <MA2>

A:Cross-references: EMBL:M23086
 R:Chiu, I.M.; Wang, W.P.; Lehtoma, K.
 Oncogene 5, 755-762, 1990
 A:Title: Alternative splicing generates two forms of mRNA coding for human heparin-binding
 A:Reference number: A43804; MUID:90265618
 A:Accession: A43804
 A:Molecule type: mRNA
 A:Residues: 1-155 <CH>
 A:Cross-references: EMBL:X51943; NID:932435; PIDN:CAA36206.1; PID:932436
 R:Jaye, M.; Hawk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.; Rivera, M.W.; O'Brien, S.J.;
 Science 233, 541-545, 1986
 A:Title: Human endothelial cell growth factor: cloning, nucleotide sequence, and chromos
 A:Reference number: A24662; MUID:86261805
 A:Accession: A24662
 A:Molecule type: mRNA
 A:Residues: 1-155 <JAY>
 A:Cross-references: GB:M1361; NID:9181941; PIDN:AAA9245.1; PID:9181942
 R:Yu, Y.L.; Kna, H.; Golden, J.A.; Mischel, A.A.J.; Goetzl, E.J.; Turck, C.W.
 J. Exp. Med. 175, 1073-1080, 1992
 A:Title: An acidic fibroblast growth factor protein generated by alternate splicing acts
 A:Reference number: JH0707; MUID:92202857
 A:Accession: JH0707
 A:Molecule type: mRNA
 A:Residues: 1-155 <YU>
 A:Cross-references: GB:X65778; NID:9396163; PIDN:CAA4661.1; PID:9396164
 R:Payson, R.A.; Canatun, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; Chiu,
 Nucleic Acids Res. 21, 489-495, 1993
 A:Title: Cloning of two novel forms of human acidic fibroblast growth factor (aFGF) mRNA
 A:Reference number: S35535; MUID:93181239
 A:Accession: S35535
 A:Status: translation not shown
 A:Molecule type: mRNA
 A:Residues: 1-58 <PAY>
 A:Cross-references: GB:L01485
 A:Accession: S35536
 A:Status: translation not shown
 A:Molecule type: mRNA
 A:Residues: 1-58 <PA>
 A:Cross-references: GB:L01487
 R:Crumley, G.; Dionne, C.A.; Jaye, M.
 Biochem. Biophys. Res. Commun. 171, 7-13, 1990
 A:Title: The gene for human acidic fibroblast growth factor encodes two upstream exons a
 A:Reference number: I39412; MUID:90365758
 A:Accession: I39412
 A:Status: translation not shown
 A:Molecule type: mRNA
 A:Residues: 1-40 <RES>
 A:Cross-references: GB:M60515; NID:9178226; PIDN:AAA51672.1; PID:9553170; GB:M60516; NIT
 R:Harper, J.W.; Strydom, D.J.; Lobd, R.R.
 Biochemistry 25, 4097-4103, 1986
 A:Reference number: A23553; MUID:86296647
 A:Accession: A23553
 A:Molecule type: protein
 A:Residues: 16-155 <HAR>
 R:Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
 Biochem. Biophys. Res. Commun. 138, 611-617, 1986
 A:Title: The complete amino acid sequence of human brain-derived acidic fibroblast growth
 A:Reference number: A24820; MUID:86295741
 A:Accession: A24820
 A:Molecule type: protein
 A:Residues: 16-155 <GIM>
 R:Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
 Biochem. Biophys. Res. Commun. 135, 541-548, 1986
 A:Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal
 A:Reference number: A90122; MUID:86186784
 A:Accession: A24243
 A:Molecule type: protein
 A:Residues: 16-47 <G12>
 A:Experimental source: brain
 R:Gautschi, P.; Frater-Schroder, M.; Bohlen, P.
 FEBS Lett. 204, 203-207, 1986
 A:Title: Partial molecular characterization of endothelial cell mitogens from human brai
 A:Reference number: A91364; MUID:86275260

A:Accession: A24301
 A:Molecule type: protein
 A:Residues: 16-30, 'X', 32-49 <GAU>
 R:Gautschi-Sova, P.; Muller, T.; Bohlen, P.
 Biochem. Biophys. Res. Commun. 140, 874-880, 1986
 A:Title: Amino acid sequence of human acidic fibroblast growth factor.
 A:Reference number: A26386; MUID:87048871
 A:Accession: A26386
 A:Molecule type: protein
 A:Residues: 16-155 <GA2>
 A:Experimental source: brain
 R:Chavan, A.J.; Haley, B.E.; Volk, D.B.; Marfisi, K.E.; Verticelli, A.M.; Bruner, J.
 Biochemistry 33, 7193-7202, 1994
 A:Title: Interaction of nucleotides with acidic fibroblast growth factor (FGF-1).
 A:Reference number: A53639; MUID:94271773
 A:Accession: A53639
 A:Molecule type: protein
 A:Residues: 16-30, 'X', 32-38, 73-75, 'X', 77-97, 'X', 99-101, 128-131, 'X', 133-140, 'X', 142-1
 C:Genetics: GDB:FGF1; PGFA
 A:Gene: GDB:FGF1; PGFA
 A:Cross-references: GDB:119909; OMT:131220
 A:Map position: 5q31.3-5q33.2
 A:Introns: 57/1; 91/3
 C:Superfamily: fibroblast growth factor
 C:Keywords: alternative splicing; growth factor; heparin binding
 F:16-155/Product: fibroblast growth factor 1 #status experimental
 F:129/Binding site: carbohydrate (asn) (covalent) #status absent

Query Match 28.2% Score 174.5; DB 1; Length 155;
 Best Local Similarity 59.3%; Pred. No. 9.2e-07;
 Matches 35; Conservative 4; Mismatches 17; Indels 3; Gaps 1;

QY 56 MAAGSITTLPALPEDGSGAFPPGPHKPKRYCKNGGFFLHPDGRVYDGRKSDPH 114
 DB 1 MAEGITTFMTLEKEN---LPPGNYKPKLLKYGNGGHFRLIPDGTVDGTRSDPH 56

RESULT 14
 A60721
 acidic fibroblast growth factor - golden hamster
 N:Alternate names: heparin-binding growth factor 1
 C:Species: Mesocricetus auratus (golden hamster)
 C>Date: 10-Sep-1999 #sequence, revision 10-Sep-1999 #text, change 10-Sep-1999
 C:Accession: A60721
 R:Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.
 J. Cell. Biochem. 43, 17-26, 1990
 A:Title: Characterization of the hamster DDR-1 cell aFGF/NGF-I gene and cDNA and its
 A:Reference number: A60721; MUID:90270291
 A:Accession: A60721
 A:Status: not compared with conceptual translation
 A:Molecule type: DNA
 A:Residues: 1-155 <HAL>
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor; heparin binding

Query Match 28.0% Score 173.5; DB 1; Length 155;
 Best Local Similarity 59.3%; Pred. No. 1.1e-06;
 Matches 35; Conservative 4; Mismatches 17; Indels 3; Gaps 1;

QY 56 MAAGSITTLPALPEDGSGAFPPGPHKPKRYCKNGGFFLHPDGRVYDGRKSDPH 114
 DB 1 MAEGITTFMTLEKEN---LPPGNYKPKLLKYGNGGHFRLIPDGTVDGTRSDPH 56

RESULT 15
 A60130
 acidic fibroblast growth factor - chicken
 N:Alternate names: endothelial cell growth factor
 C:Species: Gallus gallus (chicken)
 C>Date: 03-Mar-1993 #sequence, revision 03-Mar-1993 #text, change 16-Jul-1999
 C:Accession: A60130; S02639

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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:01:37 ; Search time 28.4 Seconds
(without alignments)
98,046 Million cell updates/sec

Title: US-09-642-277A-2
Perfect score: 619
Sequence: 1 LSGRGRALPGRLGGRGR.....FLRIHPDGRVDGVRKSDPH 114

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 231628 seqs, 24425594 residues

Total number of hits satisfying chosen parameters: 231628

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_AA:*
1: /cgn2_6/prodata/2/1aa/5A_COMB.pep:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	619	100.0	210	1	US-08-464-590A-14
2	619	100.0	210	2	US-08-207-412B-9
3	619	100.0	210	3	US-09-093-585-14
4	340	54.9	67	3	US-08-897-924A-8
5	339	54.8	140	5	PCT-US90-06962-1
6	339	54.8	158	4	US-09-220-077C-2
7	337	54.4	235	1	US-08-078-683A-39
8	333	53.8	158	2	US-08-599-895-3
9	333	53.8	158	3	US-09-211-290-3
10	333	53.8	158	3	US-09-322-676-3
11	333	53.8	158	4	US-09-466-036A-3
12	332.5	53.7	432	1	US-07-959-369-8
13	332.5	53.7	432	1	US-07-959-369-9
14	332.5	53.7	432	2	US-08-836-854-20
15	328	53.0	150	3	US-08-441-629-8
16	328	53.0	150	5	PCT-US95-09172-8
17	328	53.0	155	1	US-07-959-369-6
18	328	53.0	155	1	US-07-959-369-7
19	328	53.0	155	1	US-07-842-177A-1
20	328	53.0	155	1	US-08-439-725A-10
21	328	53.0	155	1	US-08-325-632-1
22	328	53.0	155	1	US-08-462-169B-10
23	328	53.0	155	2	US-08-867-471-10
24	328	53.0	155	2	US-08-438-439C-14
25	328	53.0	155	2	US-08-951-822-28
26	328	53.0	155	3	US-09-103-079-10
27	328	53.0	155	3	US-09-103-079-10

28	328	53.0	155	3	US-08-705-245-6	Sequence 6, Appl1
29	328	53.0	155	3	US-08-897-924A-25	Sequence 25, Appl1
30	328	53.0	155	3	US-08-718-904-11	Sequence 11, Appl1
31	328	53.0	155	3	US-09-023-082A-17	Sequence 17, Appl1
32	328	53.0	155	3	US-09-030-613-3	Sequence 3, Appl1
33	328	53.0	155	4	US-09-098-628-2	Sequence 2, Appl1
34	328	53.0	155	4	US-09-451-905-3	Sequence 3, Appl1
35	328	53.0	155	4	US-09-368-951-28	Sequence 28, Appl1
36	328	53.0	155	5	PCT-US91-02186-2	Sequence 2, Appl1
37	328	53.0	155	5	PCT-US91-02186-4	Sequence 4, Appl1
38	328	53.0	155	6	5514566-6	Patent No. 5514566
39	328	53.0	155	6	5514566-8	Patent No. 5514566
40	323	52.2	154	2	US-08-438-439C-24	Sequence 24, Appl1
41	323	52.2	154	3	US-08-325-186-1	Sequence 1, Appl1
42	319	51.5	153	3	US-08-325-186-2	Sequence 2, Appl1
43	319	51.5	154	5	PCT-US91-02186-6	Sequence 6, Appl1
44	319	51.5	155	1	US-08-023-757-2	Sequence 2, Appl1
45	319	51.5	155	1	US-08-023-757-4	Sequence 4, Appl1

ALIGNMENTS

RESULT 1
US-08-464-590A-14
Sequence 14, Application US/08464590A
Patent No. 5763214
GENERAL INFORMATION:
APPLICANT: HU; JING-SHAN
APPLICANT: ROSEN, CRAIG A.
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR-11
NUMBER OF SEQUENCES: 17
CORRESPONDENCE ADDRESS:
ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI,
ADDRESSEE: STEWART & OLSTEIN
STREET: 6 BECKER FARM ROAD
CITY: ROSELAND
STATE: NJ
COUNTRY: US
ZIP: 07068
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/464,590A
FILING DATE: 05-JUN-1995
CLASSIFICATION: 536
ATTORNEY/AGENT INFORMATION:
NAME: MULLINS, J. G.
REGISTRATION NUMBER: 30,073
REFERENCE/DOCKET NUMBER: 325800-438
TELECOMMUNICATION INFORMATION:
TELEPHONE: (201) 994-1700
TELEFAX: (201) 994-1744
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
LENGTH: 210 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-464-590A-14

Query Match 100.0%; Score 619; DB 1; Length 210;
Best Local Similarity 100.0%; Pred. No. 4.6e-45;
Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LSGRGRALPGRLGGRGRAPERVGGRGRGTAAAPAAAGSRPGAGTAAGS 60
DB 1 LSGRGRALPGRLGGRGRAPERVGGRGRGTAAAPAAAGSRPGAGTAAGS 60

QY 61 ITTLPALPEDGSGAPPGHFKDPKRLCKNGGFFLRIHPDGRVDCVREKSDPH 114
DB 61 ITTLPALPEDGSGAPPGHFKDPKRLCKNGGFFLRIHPDGRVDCVREKSDPH 114

RESULT 2

US-08-207-412B-9
Sequence 9, Application US/08207412B
Patent No. 5817485
GENERAL INFORMATION:
APPLICANT: Hu, Jing-Shan
TITLE OF INVENTION: Fldproblast Growth Factor-10
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSEE: Carella, Byrne, Bain, Giffillan, Cecchi,
STREET: 6 Becker Farm Road
CITY: Roseland
STATE: NJ
COUNTRY: USA
ZIP: 07068-1739
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/207,412B
FILING DATE: 08-MAR-1994
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Petriaro, Gregory D
REGISTRATION NUMBER: 36,134
REFERENCE/DOCKET NUMBER: 325800-100
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201-994-1700
TELEFAX: 201-994-1744
INFORMATION FOR SEQ ID NO: 9:
SEQUENCE CHARACTERISTICS:
LENGTH: 210 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-207-412B-9

Query Match 100.0%; Score 619; DB 2; Length 210;
Best Local Similarity 100.0%; Pred. No. 4.6e-45;
Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LQDGRGRALPGRLGGRGRAPRERVGGRGRTAARPAARAGSRPGAGTMAAGS 60
DB 1 LQDGRGRALPGRLGGRGRAPRERVGGRGRTAARPAARAGSRPGAGTMAAGS 60
QY 61 ITTLPALPEDGSGAPPGHFKDPKRLCKNGGFFLRIHPDGRVDCVREKSDPH 114
DB 61 ITTLPALPEDGSGAPPGHFKDPKRLCKNGGFFLRIHPDGRVDCVREKSDPH 114

RESULT 3

US-09-093-585-14
Sequence 14, Application US/09093585
Patent No. 6110893
GENERAL INFORMATION:
APPLICANT: HU, JING-SHAN
APPLICANT: ROSEN, CRAIG A.
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR-11
NUMBER OF SEQUENCES: 17
CORRESPONDENCE ADDRESS:
ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI,
ADDRESSEE: STEWART & OLSTEIN

STREET: 6 BECKER FARM ROAD
CITY: ROSELAND
STATE: NJ
COUNTRY: US
ZIP: 07068

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/093,585
FILING DATE: 05-JUN-1995

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/464,590
FILING DATE: 05-JUN-1995
ATTORNEY/AGENT INFORMATION:
NAME: MILLINS, J. G.
REGISTRATION NUMBER: 30,073
REFERENCE/DOCKET NUMBER: 325800-438
TELECOMMUNICATION INFORMATION:
TELEPHONE: (201) 994-1700
TELEFAX: (201) 994-1744
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
LENGTH: 210 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-09-093-585-14

Query Match 100.0%; Score 619; DB 3; Length 210;
Best Local Similarity 100.0%; Pred. No. 4.6e-45;
Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LQDGRGRALPGRLGGRGRAPRERVGGRGRTAARPAARAGSRPGAGTMAAGS 60
DB 1 LQDGRGRALPGRLGGRGRAPRERVGGRGRTAARPAARAGSRPGAGTMAAGS 60
QY 61 ITTLPALPEDGSGAPPGHFKDPKRLCKNGGFFLRIHPDGRVDCVREKSDPH 114
DB 61 ITTLPALPEDGSGAPPGHFKDPKRLCKNGGFFLRIHPDGRVDCVREKSDPH 114

RESULT 4

US-08-897-924A-8
Sequence 8, Application US/08897924A
Patent No. 6028058
GENERAL INFORMATION:
APPLICANT: Floitkiewicz, Robert Z.
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR REGULATING
NUMBER OF SEQUENCES: 28
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
CITY: Seattle
STATE: Washington
COUNTRY: USA
ZIP: 98104
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/897,924A
FILING DATE: 21-JUL-1997
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:

NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 200124.403
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
LENGTH: 67 amino acids
TYPE: amino acid
STRANDEDNESS:
TOPOLOGY: linear
US-08-897-924A-8

Query Match 54.9%; Score 340; DB 3; Length 67;
Best Local Similarity 98.5%; Pred. No. 3.1e-22;
Matches 66; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 LQDRGRALPGRLGGRGRGAPENYGGRGKGTAPRAAPAAAGSRPGATMAAGS 60
Db 1 LQDRGRALPGRLGGRGRGAPENYGGRGKGTAPRAAPAAAGSRPGATMAAGS 60

Qy 61 ITTLPAL 67
Db 61 ITTLPAL 67

RESULT 5
PCT-US90-06962-1

Sequence 1, Application PC/TUS9006962
GENERAL INFORMATION:
APPLICANT: Baird, David P.
TITLE OF INVENTION: Treatment of HSV
NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
ADDRESS: Fitch, Even, Tabin & Flannery
STREET: 135 South LaSalle Street, Suite 900
CITY: Chicago
STATE: Illinois
COUNTRY: USA
ZIP: 60603
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.24
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US90/06962
FILING DATE: 19901129
CLASSIFICATION: Au 186/C1 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/443,939
FILING DATE: 30-NOV-1989
ATTORNEY/AGENT INFORMATION:
NAME: Schumann, James J.
REGISTRATION NUMBER: 20856
REFERENCE/DOCKET NUMBER: 50742
TELECOMMUNICATION INFORMATION:
TELEPHONE: (619)552-1311
TELEFAX: (619)552-0095
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 157 amino acids
TYPE: AMINO ACID
TOPOLOGY: linear
MOLECULE TYPE: protein
PCT-US90-06962-1

Query Match 54.8%; Score 339; DB 5; Length 140;
Best Local Similarity 100.0%; Pred. No. 7.8e-22;

Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 54 GTMAAGSTTTLPALPDDGSGAFPPGHFKDPKRLCKNGGFLRLHPDGRVGVREKSDP 113
Db 1 GTMAAGSTTTLPALPDDGSGAFPPGHFKDPKRLCKNGGFLRLHPDGRVGVREKSDP 60

Qy 114 H 114
Db 61 H 61

RESULT 6
US-09-220-077C-2

Sequence 2, Application US/09220077C
Patent No. 6274712
GENERAL INFORMATION:
APPLICANT: Springer, Barry A.
APPLICANT: Pantoliano, Michael W.
APPLICANT: Sharp, Celia M.
TITLE OF INVENTION: Analogs of Human basic Fibroblast Growth Factor
FILE REFERENCE: 1503.0220001
CURRENT APPLICATION NUMBER: US/09/220,077C
CURRENT FILING DATE: 1998-12-23
PRIOR APPLICATION NUMBER: US 60/068,667
PRIOR FILING DATE: 1997-12-23
NUMBER OF SEQ ID NOS: 4
SOFTWARE: Patentin version 3.0
SEQ ID NO 2
LENGTH: 158
TYPE: PRT
ORGANISM: Homo sapiens
US-09-220-077C-2

Query Match 54.8%; Score 339; DB 4; Length 158;
Best Local Similarity 100.0%; Pred. No. 8.9e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 54 GTMAAGSTTTLPALPDDGSGAFPPGHFKDPKRLCKNGGFLRLHPDGRVGVREKSDP 113
Db 2 GTMAAGSTTTLPALPDDGSGAFPPGHFKDPKRLCKNGGFLRLHPDGRVGVREKSDP 61

Qy 114 H 114
Db 62 H 62

RESULT 7
US-08-078-683A-39

Sequence 39, Application US/08078683A
Patent No. 5486599
GENERAL INFORMATION:
APPLICANT: Saunders, Scott
APPLICANT: Benfield, Merton
APPLICANT: Kato, Masato
TITLE OF INVENTION: Construction and use of Synthetic
NUMBER OF SEQUENCES: 43
CORRESPONDENCE ADDRESS:
ADDRESS: LAHIVE & COCKFIELD
STREET: 60 State Street
CITY: Boston
STATE: MA
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: ASCII (text)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/078,683A
FILING DATE: 17-JUN-1993

CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Vincent, Matthew P.
REGISTRATION NUMBER: 36,709
REFERENCE/DOCKET NUMBER: CME-062
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 39:
SEQUENCE CHARACTERISTICS:
LENGTH: 235 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
FRAGMENT TYPE: internal
US-08-078-683A-39

Query Match 54.4%; Score 337; DB 1; Length 235;
Best Local Similarity 64.2%; Pred. No. 1.9e-21;
Matches 70; Conservative 2; Mismatches 19; Indels 18; Gaps 3;

OY 24 PERVGGR-----RGRTAA-----PRAAPA-----RGRPGPAGTMAAGSITTLIP 65
DB 31 PEDDGGSSDDSNFSGSGALPTLSKQTPSTMDVWLTATPTAPPTSAAGSITTLIP 90
OY 66 ALPEDGSGAFPPGPHFKDKPKRLCYCKNGGFFLRHPDGRVDGVRKSDPH 114
DB 91 ALPEDGSGAFPPGPHFKDKPKRLCYCKNGGFFLRHPDGRVDGVRKSDPH 139

RESULT 8
US-08-599-895-3
Sequence 3, Application US/08599895
Patent No. 5891855
GENERAL INFORMATION:
APPLICANT: Flokiewicz, Robert Z.
TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
CITY: Seattle
STATE: Washington
COUNTRY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/599,895
FILING DATE: 31-JAN-1996
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: No. 5891855tenburg Ph.D., Carol
REGISTRATION NUMBER: 39,317
REFERENCE/DOCKET NUMBER: 760100.416
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 158 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-599-895-3

Query Match 53.8%; Score 333; DB 2; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.8e-21;

Matches 60; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 55 TMAAGSITTLIPALPEDGSGAFPPGPHFKDKPKRLCYCKNGGFFLRHPDGRVDGVRKSDPH 114
DB 3 TMAAGSITTLIPALPEDGSGAFPPGPHFKDKPKRLCYCKNGGFFLRHPDGRVDGVRKSDPH 62

RESULT 9
US-09-211-290-3
Sequence 3, Application US/09211290
Patent No. 6071885
GENERAL INFORMATION:
APPLICANT: Flokiewicz, Robert Z.
TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
CITY: Seattle
STATE: Washington
COUNTRY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/211,290
FILING DATE: 12-DEC-1998
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Makl, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 200124.401D1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 158 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-09-211-290-3

Query Match 53.8%; Score 333; DB 3; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.8e-21;
Matches 60; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 55 TMAAGSITTLIPALPEDGSGAFPPGPHFKDKPKRLCYCKNGGFFLRHPDGRVDGVRKSDPH 114
DB 3 TMAAGSITTLIPALPEDGSGAFPPGPHFKDKPKRLCYCKNGGFFLRHPDGRVDGVRKSDPH 62
RESULT 10
US-09-322-676-3
Sequence 3, Application US/09322676
Patent No. 6107283
GENERAL INFORMATION:
APPLICANT: Flokiewicz, Robert Z.
TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
CITY: Seattle
STATE: Washington
COUNTRY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/322,676
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 09/211,290
FILING DATE: 12-DEC-1998
ATTORNEY/AGENT INFORMATION:
NAME: Makl, David J.
REGISTRATION NUMBER: 31,392
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 158 amino acids
MOLECULE TYPE: protein
US-09-322-676-3

Query Match 53.8%; Score 333; DB 3; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.8e-21;
Matches 60; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 55 TMAAGSTTLPALPEDGSSGAFPPGHFKDPKRLCKNGGFLRLHPDGRVGVREKSDPH 114
Db 3 TMAAGSTTLPALPEDGSSGAFPPGHFKDPKRLCKNGGFLRLHPDGRVGVREKSDPH 62

RESULT 11
US-09-466-036A-3
Sequence 3, Application US/09466036A
Patent No. 6281197
GENERAL INFORMATION:
APPLICANT: Florjencz, Robert Z.
TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
City: Seattle
STATE: Washington
COUNTRY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/466,036A
FILING DATE: 17-DEC-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 09/211,290
FILING DATE: <Unknown>
ATTORNEY/AGENT INFORMATION:
NAME: Makl, David J.
REGISTRATION NUMBER: 31,392
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 158 amino acids
TYPE: amino acid

TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 3:
US-09-466-036A-3

Query Match 53.8%; Score 333; DB 4; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.8e-21;
Matches 60; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 55 TMAAGSTTLPALPEDGSSGAFPPGHFKDPKRLCKNGGFLRLHPDGRVGVREKSDPH 114
Db 3 TMAAGSTTLPALPEDGSSGAFPPGHFKDPKRLCKNGGFLRLHPDGRVGVREKSDPH 62

RESULT 12
US-07-959-369-8
Sequence 8, Application US/07959369
Patent No. 5302701
GENERAL INFORMATION:
APPLICANT: Hidetaka HASHI et al.
TITLE OF INVENTION: No. 5302701el Functional polypeptide
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Wenderoth, Lind & Ponack
STREET: 805 Fifteenth Street, N.W., #700
City: Washington
STATE: D.C.
COUNTRY: U.S.A.
ZIP: 20005
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 5.25 Inch, 500 kb
COMPUTER: IBM Compatible
OPERATING SYSTEM: MS-DOS
SOFTWARE: Wordperfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/959,369
FILING DATE: 19921013
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Warren M. Cheek, Jr.
REGISTRATION NUMBER: 33,367
REFERENCE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-371-8850
TELEFAX:
TELEX:
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
LENGTH: 432 amino acids
TYPE: AMINO ACID
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: polypeptide
HYPOTHEICAL:
ANTI-SENSE:
FRAGMENT TYPE:
ORIGINAL SOURCE:
ORGANISM:
STRAIN:
INDIVIDUAL ISOLATE:
DEVELOPMENTAL STAGE:
HAPLOTYPE:
TISSUE TYPE:
CELL TYPE:
CELL LINE:
ORGANELLE:
IMMEDIATE SOURCE:
LIBRARY:
CLONE:

POSITION IN GENOME:
CHROMOSOME/SEGMENT:
MAP POSITION:
UNITS:
FEATURE:
NAME/KEY:
LOCATION:
IDENTIFICATION METHOD:
OTHER INFORMATION:
PUBLICATION INFORMATION:
AUTHORS:
TITLE:
JOURNAL:
VOLUME:
ISSUE:
PAGES:
DATE:
DOCUMENT NUMBER:
FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES IN SEQ ID NO:
US-07-959-369-8

Query Match 53.7%; Score 332.5; DB 1; Length 432;
Best Local Similarity 77.1%; Pred. No. 8.4e-21;
Matches 64; Conservative 4; Mismatches 14; Indels 1; Gaps 1;
OY 33 GGTAAAPRAAPAAAGSRPG-PAGTMAAGSITTLPALPEDGGSGAPPGHFKDPKRLYCKN 91
DB 254 GRGSPASSKRPISINYRTEIDKPSMAAGSITTLPALPEDGGSGAPPGHFKDPKRLYCKN 313
OY 92 GGFRLRHDPDGRVDCVREKSDPH 114
DB 314 GGFRLRHDPDGRVDCVREKSDPH 336

RESULT 13
US-07-959-369-9
Sequence 9, Application US/07959369
Patent No. 5302701
GENERAL INFORMATION:
APPLICANT: Hidetaka HASHI et al.
TITLE OF INVENTION: NO. 5302701el Functional Polypeptide
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Wenderoth, Lind & Ponack
STREET: 805 Fifteenth Street, N.W., #700
CITY: Washington
STATE: D.C.
COUNTRY: U.S.A.
ZIP: 20005
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 5.25 inch, 500 kb
COMPUTER: IBM Compatible
OPERATING SYSTEM: MS-DOS
SOFTWARE: Mordperfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/959,369
FILING DATE: 19921013
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Warren M. Cheek, Jr.
REGISTRATION NUMBER: 33,367
TELEPHONE: 202-371-8850
TELEFAX:
TELEX:
INFORMATION FOR SEQ ID NO: 9:

SEQUENCE CHARACTERISTICS:
LENGTH: 432 amino acids
TYPE: AMINO ACID
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: polypeptide
HYPOTHETICAL:
ANTI-SENSE:
FRAGMENT TYPE:
ORIGINAL SOURCE:
ORGANISM:
STRAIN:
INDIVIDUAL ISOLATE:
DEVELOPMENTAL STAGE:
HAPLOTYPE:
TISSUE TYPE:
CELL TYPE:
CELL LINE:
ORGANELLE:
IMMEDIATE SOURCE:
LIBRARY:
CLONE:
POSITION IN GENOME:
CHROMOSOME/SEGMENT:
MAP POSITION:
UNITS:
FEATURE:
NAME/KEY:
LOCATION:
IDENTIFICATION METHOD:
OTHER INFORMATION:
PUBLICATION INFORMATION:
AUTHORS:
TITLE:
JOURNAL:
VOLUME:
ISSUE:
PAGES:
DATE:
DOCUMENT NUMBER:
FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES IN SEQ ID NO:
US-07-959-369-9

Query Match 53.7%; Score 332.5; DB 1; Length 432;
Best Local Similarity 77.1%; Pred. No. 8.4e-21;
Matches 64; Conservative 4; Mismatches 14; Indels 1; Gaps 1;
OY 33 GGTAAAPRAAPAAAGSRPG-PAGTMAAGSITTLPALPEDGGSGAPPGHFKDPKRLYCKN 91
DB 254 GRGSPASSKRPISINYRTEIDKPSMAAGSITTLPALPEDGGSGAPPGHFKDPKRLYCKN 313
OY 92 GGFRLRHDPDGRVDCVREKSDPH 114
DB 314 GGFRLRHDPDGRVDCVREKSDPH 336

RESULT 14
US-08-836-854-20
Sequence 20, Application US/08836854
Patent No. 5824547
GENERAL INFORMATION:
APPLICANT: HASHINO, Kimikazu
APPLICANT: MATSUSHITA, Hideyuki
APPLICANT: KATO, Ikunoshi
TITLE OF INVENTION: METHOD OF PRODUCTION OF TRANSFECTED CELLS
NUMBER OF SEQUENCES: 21
CORRESPONDENCE ADDRESS:
ADDRESSEE: Browdy and Nelmark
STREET: 419 Seventh Street N.W. Ste. 300
CITY: Washington

```

STATE: D.C.
COUNTRY: USA
ZIP: 20004
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/836,854
FILING DATE:
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP95/02425
FILING DATE: 29-NOV-1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 317721/1994
FILING DATE: 29-NOV-1994
ATTORNEY/AGENT INFORMATION:
NAME: Browdy, Roger L.
REGISTRATION NUMBER: 25,618
REFERENCE/DOCKET NUMBER: HASHINO-1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 628-5197
TELEFAX: (202) 737-3528
INFORMATION FOR SEQ ID NO: 20:
SEQUENCE CHARACTERISTICS:
LENGTH: 432 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-836-854-20

Query Match          53.7%  Score 332.5;  DB 2;  Length 432;
Best Local Similarity 77.1%  Pred. No. 8.4e-21;
Matches 64; Conservative 4; Mismatches 14; Indels 1; Gaps 1;

QY 33 GCGAAPPRAAPAAFGSRG-PAGTMAAGSITTLALPEDGGSGAPPFGHFDPKRYCKN 91
    ||| : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DB 254 GGGSPASSKRISINRYREIDKPSMAAGSITTLALPEDGGSGAPPFGHFDPKRYCKN 313

QY 92 GGEFLRIHPDGRVDGVREKSDPH 114
    |||||||||||||||||||
DB 314 GGFEFLRIHPDGRVDGVREKSDPH 336

RESULT 15
US-08-441-629-8
; Sequence 8, Application US/08441629
; Patent No. 5766923
GENERAL INFORMATION:
APPLICANT: Kirschner, Marc W.
APPLICANT: Kinoshita, No. 5766923Iyuk1
TITLE OF INVENTION: RECEPTOR-LIGAND ASSAY
NUMBER OF SEQUENCES: 17
CORRESPONDENCE ADDRESS:
ADDRESSEE: Hamilton, Brook, Smith & Reynolds, P.C.
STREET: Two Millitia Drive
CITY: Lexington
STATE: Massachusetts
COUNTRY: USA
ZIP: 02173
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/441,629
FILING DATE: 15-MAY-1995
CLASSIFICATION: 435

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      PRIOR APPLICATION DATA:
      APPLICATION NUMBER: US 08/279,217
      FILING DATE: 22-JUL-1994
      ATTORNEY/AGENT INFORMATION:
      NAME: Granahan, Patricia
      REGISTRATION NUMBER: 32,227
      REFERENCE/DOCKET NUMBER: HQ95-01A
      TELECOMMUNICATION INFORMATION:
      TELEPHONE: (617) 861-6240
      TELEFAX: (617) 861-9540
      INFORMATION FOR SEQ ID NO: 8:
      SEQUENCE CHARACTERISTICS:
      LENGTH: 150 amino acids
      TYPE: amino acid
      STRANDEDNESS: single
      TOPOLOGY: linear
      MOLECULE TYPE: protein
      US-08-441-629-8

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Query Match          53.0%; Score 328; DB 1; Length 150;
Best Local Similarity 100.0%; Pred. No. 7e-21;
Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 56 MAAGSITLPLPLPEDGGSGAFPPGHFKPKRLCYCKNGSGFLLRHPDGVDGVRKSDPH 114
      |||||
Db 1 MAAGSITLPLPLPEDGGSGAFPPGHFKPKRLCYCKNGSGFLLRHPDGVDGVRKSDPH 59

```


GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:03:39 ; Search time 73.59 Seconds
(without alignments)
172.067 Million cell updates/sec

Title: US-09-642-277A-2

Perfect score: 619
Sequence: 1 LQDRGRGRLPGRLGGRG.....FLRIHPDGRVDSREKSDPH 114

Scoring table: BIOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues

Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%
Listing first 45 summaries

Database :

1: /SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1980.DAT:*
2: /SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1981.DAT:*
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6: /SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1985.DAT:*
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13: /SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1992.DAT:*
14: /SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1993.DAT:*
15: /SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1994.DAT:*
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19: /SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1998.DAT:*
20: /SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1999.DAT:*
21: /SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA2000.DAT:*
22: /SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA2001.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	619	100.0	114	22	AAB60696 Human basic fibroblast
2	619	100.0	210	11	AAR06685 Recombinant basic
3	619	100.0	210	22	AAB50299 Human fibroblast g
4	619	100.0	210	22	AAB50706 Human fibroblast g
5	617	99.7	210	22	AAB60695 Human basic fibroblast
6	617	99.7	211	11	AAR07076 Extended recombinant
7	340	54.9	67	20	AAW99376 Human fibroblast g
8	339	54.8	157	8	AAW1085 Sequence of human
9	339	54.8	157	13	AAW25199 Basic fibroblast g
10	339	54.8	157	22	AAW65078 human fibroblast g
11	339	54.8	157	22	AAW65079 human fibroblast g

12	339	54.8	157	22	AAW65080 human fibroblast g
13	339	54.8	157	22	AAW65081 human fibroblast g
14	339	54.8	157	22	AAW65082 human fibroblast g
15	339	54.8	157	22	AAW65083 human fibroblast g
16	339	54.8	157	22	AAW65084 human fibroblast g
17	339	54.8	157	22	AAW65085 human fibroblast g
18	339	54.8	157	22	AAW65086 human fibroblast g
19	339	54.8	157	22	AAW65087 human fibroblast g
20	339	54.8	157	22	AAW65088 human fibroblast g
21	339	54.8	157	22	AAW65089 human fibroblast g
22	339	54.8	157	22	AAW65090 human fibroblast g
23	339	54.8	157	22	AAW65091 human fibroblast g
24	339	54.8	157	22	AAW65092 human fibroblast g
25	339	54.8	157	22	AAW65093 human fibroblast g
26	339	54.8	157	22	AAW65094 human fibroblast g
27	339	54.8	157	22	AAW65095 human fibroblast g
28	339	54.8	157	22	AAW65096 human fibroblast g
29	339	54.8	157	22	AAW65097 human fibroblast g
30	339	54.8	157	22	AAW65098 human fibroblast g
31	339	54.8	157	22	AAW65099 human fibroblast g
32	339	54.8	157	22	AAW65100 human fibroblast g
33	339	54.8	157	22	AAW65101 human fibroblast g
34	339	54.8	157	22	AAW65102 human fibroblast g
35	339	54.8	157	22	AAW65103 human fibroblast g
36	339	54.8	157	22	AAW65104 human fibroblast g
37	339	54.8	157	22	AAW65105 human fibroblast g
38	339	54.8	157	22	AAW65106 human fibroblast g
39	339	54.8	157	22	AAW65107 human fibroblast g
40	339	54.8	157	22	AAW65108 human fibroblast g
41	339	54.8	157	22	AAW65109 human fibroblast g
42	339	54.8	157	22	AAW65110 human fibroblast g
43	339	54.8	157	22	AAW65111 human fibroblast g
44	339	54.8	157	22	AAW65112 human fibroblast g
45	339	54.8	157	22	AAW65113 human fibroblast g

ALIGNMENTS

RESULT 1	AAW60696 standard; protein; 114 aa.
XX	AAW60696;
XX	22-MAY-2001 (first entry)
DE	Human basic fibroblast growth factor (bFGF) 114 aa form, SEQ ID NO:2.
XX	Human bFGF; basic fibroblast growth factor; 114 residue form;
KW	central nervous system; CNS damage; brain damage; neural stimulant;
KW	stem cell; conjoint administration; therapy; recovery;
KW	ischemia; hypoxia; trauma; neurodegenerative disorder;
KW	infectious disease; cancer; autoimmune disease; metabolic disorder;
KW	stroke; encephalomyelitis; Alzheimer's disease; Huntington's disease;
KW	Parkinson's disease; Creutzfeldt-Jakob disease; multiple sclerosis;
KW	anyotropic lateral sclerosis.
OS	Homo sapiens.
XX	WO200112236-A2.
PN	22-FEB-2001.
PD	18-AUG-2000; 2000MO-US22843.
XX	18-AUG-1999; 99US-0149561.
PR	(GEHO) GEN HOSPITAL CORP.
PA	Finkenstein SP, Snyder EY;
XX	WPI; 2001-211142/21.

XX Treating central nervous system damage and brain damage resulting from
PT stroke, involves administering cells or stem cells and a neural
PT stimulant -
XX
XX
PS Claim 14; Fig 4; 56pp; English.

CC The invention relates to a method of treating an individual with
CC central nervous system (CNS) damage, particularly brain damage resulting
CC from stroke. The method involves the administration of a neural stimulant
CC such as a polypeptide growth factor, and stem cells (e.g., neural stem
CC cells), hematopoietic stem cells, teratocarcinoma-derived cells or
CC embryonic stem cells) capable of giving rise to brain cells such as
CC neurons, oligodendroglia, astroglia or microglia. The conjoint
CC administration of the stem cells and the neural stimulant promotes
CC greater recovery from CNS damage than either treatment alone, and
CC provides a greater degree of recovery than is currently available with
CC other known treatment methods. From a study of the effectiveness of the
CC conjoint administration of foetal mouse neural stem cells with or
CC without basic fibroblast growth factor (bFGF) in a rat model of stroke,
CC it was found that the treatment's recovery-promoting effects are
CC probably produced through mechanisms other than the prevention of cell
CC death. The method is useful for treating injury to the brain and spinal
CC cord due to ischaemia, hypoxia, trauma, neurodegenerative disorders
CC infectious diseases, cancer, autoimmune disease and metabolic disorders.
CC Examples of such disorders include stroke, hypotension, arrested
CC breathing, cardiac arrest, brain tumours, brain injury,
CC encephalomyelitis, Alzheimer's disease, Huntington's disease, Parkinson's
CC disease, Creutzfeldt-Jakob disease, multiple sclerosis, and amyotrophic
CC lateral sclerosis. The present sequence represents a 114 residue form of
CC human bFGF which is specifically claimed for use in the method of the
CC invention.
XX
SQ Sequence 114 AA;

Query Match 100.0%; Score 619; DB 22; Length 114;
Best Local Similarity 100.0%; Pred. No. 2,2e-46;
Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 LGDRGRALPGRLGGRGRAPERVGGRGRGTAAAPRAAPAKSRPSPAGTMAAGS 60
DB 1 LGDGRGRALPGRLGGRGRAPERVGGRGRGTAAAPRAAPAKSRPSPAGTMAAGS 60
OY 61 ITTPALPEDEGSGAPPGHFKDKPKRLCYCKNGGFRLRHHPGRVDGVREKSDPH 114
DB 61 ITTPALPEDEGSGAPPGHFKDKPKRLCYCKNGGFRLRHHPGRVDGVREKSDPH 114

RESULT 2

AA06685
ID AAR06685 standard; protein; 210 AA.

AC AAR06685;

DT 11-JAN-1991 (first entry)

DE Recombinant basic fibroblast growth factor.

KW Basic fibroblast growth factor; tissue regeneration; infarction.

PN FR2642086-A.

PD 27-JUL-1990.

PF 26-JAN-1989; 89FR-0000973.

PR 26-JAN-1989; 89FR-0000973.

PA (SNFI) SANOFI SA.

PI Caput D, Ferrara P, Kaghad M;

DR WPI: 1990-277408/37.
DR N-PSDB; AA005883.
XX
XX
PT New recombinant gene encoding basic fibroblast growth factor - in
PT new high mol. wt. form, useful e.g. for stimulating tissue
PT regenerating or treating infarction
XX
XX

PS Disclosure; fig 3; 43pp; French.

CC This basic fibroblast growth factor (bFGF), encoded by clone
CC pUC-SK1, stimulates growth of mesodermal and neuroectodermal cells.
CC It is thus potentially useful e.g. for regenerating damaged tissues,
CC and for treating myocardial infarctions, Parkinsons disease and
CC Alzheimers disease. It can be produced on a large scale using rec-
CC ombinant DNA methods without risk of contamination. There are a
CC further 3 potential initiation codons in the corresp. DNA sequence,
CC allowing expression of larger forms of the protein. See also AA005884.
XX

SQ Sequence 210 AA;

Query Match 100.0%; Score 619; DB 11; Length 210;
Best Local Similarity 100.0%; Pred. No. 4.1e-46;
Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 LGDRGRALPGRLGGRGRAPERVGGRGRGTAAAPRAAPAKSRPSPAGTMAAGS 60
DB 1 LGDGRGRALPGRLGGRGRAPERVGGRGRGTAAAPRAAPAKSRPSPAGTMAAGS 60
OY 61 ITTPALPEDEGSGAPPGHFKDKPKRLCYCKNGGFRLRHHPGRVDGVREKSDPH 114
DB 61 ITTPALPEDEGSGAPPGHFKDKPKRLCYCKNGGFRLRHHPGRVDGVREKSDPH 114

RESULT 3

AA050299
ID AAB50299 standard; protein; 210 AA.

AC AAB50299;

DT 20-MAR-2001 (first entry)

DE Human fibroblast growth factor 20 SEQ ID NO: 8.

KW Human; fibroblast growth factor 11; FGF-11; cancer; autoimmune disorder;
KW hyperproliferative disorder; cardiovascular disorder; angiogenesis;
KW wound healing; neurological disease; infection.

OS Homo sapiens.

PN WO200071715-A1.

PD 30-NOV-2000.

PE 16-MAY-2000; 2000WO-US13331.

PR 21-MAY-1999; 99US-0135524.

PA (HUMA-) HUMAN GENOME SCI INC.

PI Rosen CA, Alderson R, Melder R, Duan RD, Hu J;

WPI: 2001-016408/02.

PT Polynucleotide encoding human fibroblast growth factor 11, useful in
PT the diagnosis, treatment and prevention of cancer, immune disorders,
PT cardiovascular disorders and neurological diseases -

PS Disclosure; Page 241-242; 250pp; English.

CC The present invention provides the protein and coding sequences for human
CC fibroblast growth factor 11 (FGF-11). These sequences can be used in the
CC diagnosis and treatment of infections, cancer, autoimmune disorders,

CC hyperproliferative disorders, cardiovascular disorders and neurological
CC diseases, to prevent angiogenesis and to aid wound healing.
XX
SQ Sequence 210 AA;

Query Match 100.0%; Score 619; DB 22; Length 210;
Best Local Similarity 100.0%; Pred. No. 4.1e-46;
Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LGDRGRALPGRLGGRGRAPERYGGRGRTAAPAPAAAGSRPGPAGTMAAGS 60
Db 1 Lgdrgralpgrrlggrgraperyggrgrgtaapraaparsrpgpagmaags 60
QY 61 ITTLPALPEDGSGAFPPGHFKDKPKRLYCKNGGFFLRTHPDGRVDGVREKSDPH 114
Db 61 Ittlpalpedgsgafppghfkdkpkrlycknggfflrthpdgrvdgvreksdph 114

RESULT 4

AAB50706
ID AAB50706 standard; Protein: 210 AA.

AC AAB50706;

DT 20-MAR-2001 (first entry)

DE Human fibroblast growth factor 2 SEQ ID NO: 4.

XX Human: fibroblast growth factor 10; FGF-10; cancer; autoimmune disorder;
KM hyperproliferative disorder; cardiovascular disorder; angiogenesis;
KM wound healing; neurological disease; infection.

OS Homo sapiens.

PN MO200071152-A1.

PD 30-NOV-2000.

PF 18-MAY-2000; 2000MO-US13573.

PR 21-MAY-1999; 99US-0135523.

PA (HUMA-) HUMAN GENOME SCI INC.

PI Rosen CA, Alderson R, Melder R, Duan DR, Hu J, Gocayne JD;

DR WPI; 2001-016351/02.

PT Polynucleotide encoding human fibroblast growth factor 10, useful in
PT the diagnosis, treatment and prevention of cancer, immune disorders,
PT cardiovascular disorders and neurological diseases -
PS Disclosure; Page 263; 275pp; English.

CC The present invention provides the protein and coding sequences for human
CC fibroblast growth factor 10 (FGF-10). These sequences can be used in the
CC diagnosis and treatment of infections, cancer, autoimmune disorders,
CC hyperproliferative disorders, cardiovascular disorders and neurological
CC diseases, to prevent angiogenesis and to aid wound healing.

XX
SQ Sequence 210 AA;

Query Match 100.0%; Score 619; DB 22; Length 210;
Best Local Similarity 100.0%; Pred. No. 4.1e-46;
Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LGDRGRALPGRLGGRGRAPERYGGRGRTAAPAPAAAGSRPGPAGTMAAGS 60
Db 1 Lgdrgralpgrrlggrgraperyggrgrgtaapraaparsrpgpagmaags 60
QY 61 ITTLPALPEDGSGAFPPGHFKDKPKRLYCKNGGFFLRTHPDGRVDGVREKSDPH 114

Db 61 Ittlpalpedgsgafppghfkdkpkrlycknggfflrthpdgrvdgvreksdph 114

RESULT 5

AAB60695
ID AAB60695 standard; Protein: 210 AA.

AC AAB60695;

DT 22-MAY-2001 (first entry)

DE Human basic fibroblast growth factor (bFGF) 22.5 kD form, SEQ ID NO:1.

XX Human bFGF; basic fibroblast growth factor; 22.5 kD form;
KM central nervous system; CNS damage; brain damage; neural stimulant;
KM stem cell; conjoint administration; therapy; recovery;
KM Ischaemia; hypoxia; trauma; neurodegenerative disorder;
KM infectious disease; cancer; autoimmune disease; metabolic disorder;
KM stroke; encephalomyelitis; Alzheimer's disease; Huntington's disease;
KM Parkinson's disease; Creutzfeldt-Jakob disease; multiple sclerosis;
KM anyotrophic lateral sclerosis.

OS Homo sapiens.

PN MO200112236-A2.

PD 22-FEB-2001.

PF 18-AUG-2000; 2000MO-US22843.

PR 18-AUG-1999; 99US-0149561.

PA (GEHO) GEN HOSPITAL CORP.

PI Finklestein SP, Snyder EY;

DR WPI; 2001-211142/21.

PT Treating central nervous system damage and brain damage resulting from
PT stroke, involves administering cells or stem cells and a neural
PT stimulant -
PS Claim 14; Fig 4; 56pp; English.

CC The invention relates to a method of treating an individual with
CC central nervous system (CNS) damage, particularly brain damage resulting
CC from stroke. The method involves the administration of a neural stimulant
CC such as a polypeptide growth factor, and stem cells (e.g., neural stem
CC cells, hematopoietic stem cells, teratocarcinoma-derived cells or
CC embryonic stem cells) capable of giving rise to brain cells such as
CC neurons, oligodendroglia, astroglia or microglia. The conjoint
CC administration of the stem cells and the neural stimulant promotes
CC greater recovery from CNS damage than either treatment alone, and
CC provides a greater degree of recovery than is currently available with
CC other known treatment methods. From a study of the effectiveness of the
CC conjoint administration of foetal mouse neural stem cells with or
CC without basic fibroblast growth factor (bFGF) in a rat model of stroke,
CC it was found that the treatment's recovery-promoting effects are
CC probably produced through mechanisms other than the prevention of cell
CC death. The method is useful for treating injury to the brain and spinal
CC cord due to ischaemia, hypoxia, trauma, neurodegenerative disorders
CC infectious diseases, cancer, autoimmune disease and metabolic disorders.
CC Examples of such disorders include stroke, hypotension, arrested
CC encephalomyelitis, Alzheimer's disease, Huntington's disease, Parkinson's
CC disease, Creutzfeldt-Jakob disease, multiple sclerosis, and anyotrophic
CC lateral sclerosis. The present sequence represents a 22.5 kD (210
CC residue) form of human bFGF which is specifically claimed for use in the
CC method of the invention.

XX
SQ Sequence 210 AA;

Query Match 99.7%; Score 617; DB 22; Length 210;
 Best Local Similarity 99.1%; Pred. No. 6e-46;
 Matches 113; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 LGDRGRALPGRLGGRGRAPERYGGRGRTAAPRAAPAAKSRPDPACTMAAGS 60
 :|||||
 Db 1 mgdgrgralpggrlpggrgraperyggrgrgtaapraaparsrpgpagtmaags 60
 |||||

QY 61 ITTLPALPEODGSGAFPPGHFKDKPKRLYCKNGGFELRIHPGRVDGYREKSDPH 114
 :|||||
 Db 61 ttltlpalpeodgsgafppghfkdkpkrlknggfifrlhpgrvdyvrexsdph 114
 |||||

RESULT 6
 AAR07076
 ID AAR07076 standard; protein: 211 AA.

AC AAR07076;
 XX 11-JAN-1991 (first entry)
 DE Extended recombinant basic fibroblast growth factor.
 KM Basic fibroblast growth factor; tissue regeneration; infarction.
 XX FR642086-A.
 XX 27-JUL-1990.
 XX 26-JAN-1989; 89FR-0000973.
 XX 26-JAN-1989; 89FR-0000973.
 XX 26-JAN-1989; 89FR-0000973.
 XX (SMFI) SANOFI SA.
 XX Caput D, Ferrara P, Kaghad M;
 XX WPI; 1990-277408/37.
 XX N-PSDB; AA005884.
 DR New recombinant gene encoding basic fibroblast growth factor - in
 PT new high mol. wt. form, useful e.g. for stimulating tissue
 PT regenerating or treating infarction
 XX
 PS Disclosure; fig 8; 43pp; French.
 CC This basic fibroblast growth factor (bFGF), encoded by clone
 CC 409.2, stimulates growth of mesodermal and neuroectodermal cells.
 CC It is thus potentially useful e.g. for regenerating damaged tissues,
 CC and for treating myocardial infarctions, Parkinsons disease and
 CC Alzheimers disease. It can be produced on a large scale using rec-
 CC ombinant DNA methods without risk of contamination. See also AA005884.
 XX
 SQ Sequence 211 AA;

Query Match 99.7%; Score 617; DB 11; Length 211;
 Best Local Similarity 99.1%; Pred. No. 6.1e-46;
 Matches 113; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 LGDRGRALPGRLGGRGRAPERYGGRGRTAAPRAAPAAKSRPDPACTMAAGS 60
 :|||||
 Db 1 mgdgrgralpggrlpggrgraperyggrgrgtaapraaparsrpgpagtmaags 60
 |||||

QY 61 ITTLPALPEODGSGAFPPGHFKDKPKRLYCKNGGFELRIHPGRVDGYREKSDPH 114
 :|||||
 Db 61 ttltlpalpeodgsgafppghfkdkpkrlknggfifrlhpgrvdyvrexsdph 114
 |||||

RESULT 7
 AAM99376
 ID AAM99376 standard; peptide: 67 AA.

XX AAM99376;
 XX 21-MAY-1999 (first entry)
 DE Human fibroblast growth factor 2 24 kD isoform N-terminus.
 KM Human; fibroblast growth factor; translational start site; isoform;
 KM inhibition; nuclear localisation; nuclear trafficking component;
 KM proliferation; inflammation; tumour growth; angiogenesis.
 XX Homo sapiens.
 XX MO9903489-A2.
 XX 28-JAN-1999.
 XX 20-JUL-1998; 98MO-US14997.
 XX 21-JUL-1997; 97US-0897924.
 XX (CIBL-) CIBLEX CORP.
 XX Florkiewicz RZ;
 XX WPI; 1999-131860/11.
 DR Inhibiting nuclear localisation of proteins - used for controlling
 PT cellular functions, e.g. undesired proliferation and inflammation,
 PT particularly tumours, and treating viral infection
 XX
 PS Claim 6; Fig 5; 53pp; English.

CC This sequence represents the N-terminus of the 24 kD isoform of the
 CC human fibroblast growth factor 2 (FGF2). The invention relates to
 CC inhibiting nuclear localisation of a nuclear protein in a cell, by
 CC administering an inhibitor of nuclear trafficking components.
 CC Interrupting the interaction of trafficking components and nuclear
 CC proteins may be used in a variety of applications, including inhibiting
 CC nuclear localisation, modulating protein trafficking of nuclear proteins
 CC such as FGF (in vitro or in vivo), identifying further trafficking
 CC components, and treating a variety of conditions associated with nuclear
 CC trafficking. The 24, 23 and 22 kD isoforms of FGF2 are nuclear proteins
 CC whereas the 18 kD isoform is not but is secreted. Inhibiting the nuclear
 CC transport of FGF-2 allows the control of undesired proliferation and
 CC inflammation, particularly tumour growth. Increasing export of FGF
 CC can promote angiogenesis. In addition, use of inhibitors of nuclear
 CC localisation can limit or eradicate viral (e.g. HIV or EBV) infections.
 XX
 SQ Sequence 67 AA;

Query Match 54.9%; Score 340; DB 20; Length 67;
 Best Local Similarity 98.5%; Pred. No. 1.7e-22;
 Matches 66; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 LGDRGRALPGRLGGRGRAPERYGGRGRTAAPRAAPAAKSRPDPACTMAAGS 60
 :|||||
 Db 1 lgdgrgralpggrlpggrgraperyggrgrgtaapraaparsrpgpagtmaags 60
 |||||

QY 61 ITTLPAL 67
 :|||||
 Db 61 ttltlpal 67
 |||||

RESULT 8
 AAP71085
 ID AAP71085 standard; protein: 157 AA.

AC AAP71085;
 XX 03-APR-1991 (first entry)
 DT
 XX

DE Sequence of human placental angiogenic factor (AF).
 XX Mitogenic peptide; chemotactic peptide; protease synthesis;
 KW stimulator; plasminogen; collagen; wound healer.
 XX
 OS Homo sapiens.
 XX
 XX Key Location/Qualifiers
 FT Misc-difference 20 /note="AA No. 206"
 FT
 XX
 XX EP226181-A.
 XX
 XX PD 24-JUN-1987.
 XX
 XX PF 11-DEC-1986; 86EP-0117257.
 XX
 XX PR 12-AUG-1986; 86US-0895829.
 XX PR 17-DEC-1985; 85US-0809873.
 XX PR 16-JUL-1986; 86US-0888554.
 XX
 XX (SYN-) SYNERGEN INC.
 XX Moscatelli DA, Rifkin DB, Sommer A;
 XX WPI: 1987-171528/25.
 DR N-PSDB; AAN71275.
 XX
 XX PT Angiogenic factor protein from human placental tissue - has
 PT active site(s) with mitogenic or chemotactic activity or with
 PT ability to stimulate protease synthesis.
 XX
 PS Claim 7; Page 49; 53pp; English.
 XX
 CC AF has mitogenic or chemotactic activity and stimulates protease
 CC synthesis, partic. synthesis of plasminogen activator and
 CC collagenase. AF can be used to increase the blood supply to an
 CC organ. AF can stimulate healing of decubitus ulcers, wounds,
 CC surgical incisions and burns.
 XX
 SQ Sequence 157 AA;
 54.8%; Score 339; DB 8; Length 157;
 Best Local Similarity 100.0%; Pred. No. 4,7e-22;
 Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 OY 54 GTMAAGSTTLPALPEDGSGAFPPGHRKPKRLCKNGFRLRHPDGRVGVREKSDP 113
 DB 1 gmaagsitltpalpedsdgsaifppghfkdkrlyckngfflrlhpdgrvgrvksdp 60
 OY 114 H 114
 DB 61 h 61
 RESULT 9
 AAR25199
 ID AAR25199 standard; Protein: 157 AA.
 XX
 XX AAR25199;
 XX
 XX 05-JAN-1993 (first entry)
 XX
 DE Basic fibroblast growth factor analogue with N-terminal extension.
 XX
 KW Bone disease; bFGF; osteoporosis; malignant tumour; multiple;
 KW myeloma; fracture; mutant.
 XX
 OS Homo sapiens.
 XX
 XX Key Location/Qualifiers
 FT Peptide 1..11

FT
 FT Misc-difference 80 /note="N-terminal extension"
 FT
 FT Misc-difference 98 /note="Cys in known sequence"
 FT
 FT
 XX
 XX EP493737-A.
 XX
 XX PD 08-JUL-1992.
 XX
 XX PF 17-DEC-1991; 91EP-0121597.
 XX
 XX PR 19-DEC-1990; 90JP-0419168.
 XX PR 28-MAY-1991; 91JP-0152517.
 XX
 XX (KAKE) KAKEN PHARM CO LTD.
 XX
 XX Hanada K, Hiyama Y, Tamura M;
 DR WPI: 1992-227361/28.
 XX
 XX PT Bone disease treatment agent comprising basic fibroblast growth
 PT factor - useful for treating e.g. traumatic fractures, fatigue
 PT fractures and fractures or bone defects accompanied by disease
 XX
 PS Disclosure; Page 17; 24pp; English.
 XX
 CC The sequence is that of a human basic fibroblast growth factor (bFGF)
 CC analogue comprising substitutions of cysteines by serines at
 CC residues 69 and 87 and an N-terminal extension of 1-12 residues.
 CC Optionally, the bFGF is used in an agent, as a soln. having physio-
 CC logical saline and/or buffer added, or as a gel having at least
 CC fibrinogen, apotinin and thrombin added. The bFGF analogue enables
 CC the shortening of the time period for curing various fractures including
 CC acceleration of bone formation for bone defect. It also allows the
 CC bone strength of united bones to be improved as well as the reduced
 CC bone strength accompanied by various diseases, e.g. osteoporosis,
 CC malignant tumour, multiple myeloma or nutrition disorders. Traumatic
 CC and fatigue induced fractures can also be treated, as can pathological
 CC fractures and bone defects.
 CC See also AAR25197.8.
 XX
 SQ Sequence 157 AA;
 54.8%; Score 339; DB 13; Length 157;
 Best Local Similarity 100.0%; Pred. No. 4,7e-22;
 Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 OY 54 GTMAAGSTTLPALPEDGSGAFPPGHRKPKRLCKNGFRLRHPDGRVGVREKSDP 113
 DB 1 gmaagsitltpalpedsdgsaifppghfkdkrlyckngfflrlhpdgrvgrvksdp 60
 OY 114 H 114
 DB 61 h 61
 RESULT 10
 AAG65078
 ID AAG65078 standard; Protein: 157 AA.
 XX
 XX AAG65078;
 XX
 XX 27-SEP-2001 (first entry)
 XX
 DE human fibroblast growth factor mutain E89A/D101A.
 XX
 KW Human; fibroblast growth factor; FGF; site directed mutagenesis;
 KW wound healing; ischaemia; peripheral vascular disease; neural injury;
 KW gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutain;
 KW mutant; E89A/D101A.

OS	Homo sapiens.
OS	Synthetic.
FH	
FT	Misc-difference Location/Qualifiers 89
FT	/note= "Wild-type Glu substituted by Ala"
FT	Misc-difference 137
FT	/note= "Wild-type Leu substituted by Ala"
XX	
PV	WO200146416-AI.
PD	
PD	28-JUN-2001.
PP	
PR	22-DEC-1999; 99WO-US30534.
XX	
PA	22-DEC-1999; 99WO-US30534.
XX	(THRE-) 3-DIMENSIONAL PHARM INC.
PI	Springer BA, Pantollano MW, Sharp CM;
DR	WPI; 2001-418062/44.
PS	
PT	Novel mutin of human fibroblast growth factor comprising substitution
PT	of a neutral and/or hydrophobic amino acid for amino acid residue
PT	glutamate 89 or aspartate 101 or leucine 137, useful for treating
PT	wounds, ulcers
PS	
PS	Claim 13; Page - : 47pp: English.
CC	
CC	The sequence is human fibroblast growth factor, hFGF, mutin E89A/L137A.
CC	The mutin is produced from a cDNA encoding hFGF that has been engineered
CC-	to allow site directed mutagenesis of hFGF in order to produce mutants of
CC-	hFGF with substitutions of a neutral and/or hydrophobic amino acid for
CC	at position 2 in the following amino acid residues (numbered from the Gly
CC	is removed when the proteins are expressed in E. coli): glutamate 89, or
CC	aspartate 101 or leucine 137. hFGF mutants are useful for healing wounds,
CC	stimulating cell division in vivo or in vitro, treating ischemia,
CC	peripheral vascular disease, neural injury, gastric ulcer, duodenal
CC	ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
CC	mutins are also useful for treating the above mentioned conditions by
CC	gene therapy techniques.
CC	Note: The present sequence is not shown in the specification but is
CC	derived from the hFGF sequence shown in figure 1:
XX	
XX	Sequence 157 AA;
SQ	
	Query Match 54.8%; Score 339; DB 22; Length 157; Best Local Similarity 100.0%; Pred. No. 4.7e-22; Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0
OY	54 GTMAGSITTLPALPEDGSGAFRRGHFDPRKRYCKNGCFRLRHPDGRVDGYRRKSDDP 113 Db 1 gtmagsittlpalpedsqgaifrrghfdprkryckngcfirlrhpdgdrvdyvteksdp 60 OY 114 H 114 Db 61 h 61
RESULT 11	
ID	AAG65079 AAG65079 standard; Protein: 157 AA.
AC	AAG65079;
XX	
DT	27-SEP-2001 (first entry)
XX	
DE	human fibroblast growth factor mutin D101A/L137A.
XX	
XN	Human; fibroblast growth factor; FGF; site directed mutagenesis;

KW	wound healing; ischaemia; peripheral vascular disease; neural injury;
KV	gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutcin;
KM	mutant; D101A/L137A.
XX	
OS	Homo sapiens.
XX	Synthetic.
PH	Key
FT	Misc-difference 101
FT	/note= "Wild-type Asp substituted by Ala"
FT	Misc-difference 137
XX	/note= "Wild-type Leu substituted by Ala"
PN	WO200146416-A1.
XX	
PD	28-JUN-2001.
XX	
PE	22-DEC-1999;
XX	99WO-US30534.
PR	22-DEC-1999;
XX	99WO-US30534.
PA	(THRE-) 3-DIMENSIONAL PHARM INC.
PI	Springer BA, Pantoliano MW, Sharp CM;
XX	
DR	WPI: 2001-418062/44.
XX	
PT	Novel mutcin of human fibroblast growth factor comprising substitution
PT	of a neutral and/or hydrophobic amino acid for amino acid residue
PT	glutamate 89 or aspartate 101 or leucine 137, useful for treating
PT	wounds, ulcers
XX	
PS	Claim 14; Page - : 47pp; English.
XX	
CC	The sequence is human fibroblast growth factor, hFGF, mutcin D101A/L137A.
CC	The mutcin is produced from a cDNA encoding hFGF that has been engineered
CC	to allow site directed mutagenesis of hFGF in order to produce mutcins of
CC	hFGF with substitutions of a neutral and/or hydrophobic amino acid for
CC	one or more of the following amino acid residues (numbered from the Gly
CC	at position 2 in the wild type hFGF since the Met at position 1
CC	is removed when the proteins are expressed in E. coli); glutamate 89, or
CC	aspartate 101 or leucine 137. hFGF mutcins are useful for healing wounds,
CC	stimulating cell division in vivo or in vitro, treating ischaemia,
CC	peripheral vascular disease, neural injury, gastric ulcer, duodenal
CC	ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
CC	mutcins are also useful for treating the above mentioned conditions by
CC	gene therapy techniques.
CC	Note: The present sequence is not shown in the specification but is
CC	derived from the hFGF sequence shown in figure 1.
XX	
SQ	Sequence 157 AA;
Query Match	54.8%; Score 339; DB 22; Length 157;
Best Local Similarity	100.0%; Prid. No. 4.7e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;	
OY	54 GTMAAGSTTTLPALPEDGSGAFPGHKKDKKRLCYCKNGGFELRHPCGRDGVREKSDP 113 Db 1 gtmaagsltlcpalpedsqgsafpgnhkdkrlycknggfllrhpcgrdvrvksadp 60 H 114 ! 61 h 61
Dd	
RESULT 12	
ID	AAG65080 standard; Protein: 157 AA.
AC	AAG65080;
XX	
DT	27-SEP-2001 (first entry)

XX DE human fibroblast growth factor mutetin D101Y.
 XX
 KM Human; fibroblast growth factor; FGF; site directed mutagenesis;
 KM wound healing; ischaemia; peripheral vascular disease; neural injury;
 KM gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutetin;
 KM mutant; D101Y.
 XX
 OS Homo sapiens.
 OS Synthetic.
 XX
 FH Key
 FT Misc-difference 101 /note="Wild-type Asp substituted by Tyr"
 XX
 PN MO200146416-A1.
 XX
 PD 28-JUN-2001.
 XX
 PF 22-DEC-1999; 99WO-US30534.
 XX
 PR 22-DEC-1999; 99WO-US30534.
 XX
 PA (THRE-) 3-DIMENSIONAL PHARM INC.
 XX
 PI Springer BA, Pantollano MW, Sharp CM;
 XX
 DR MPI; 2001-418062/44.
 XX
 PT Novel mutetin of human fibroblast growth factor comprising substitution
 PT of a neutral and/or hydrophobic amino acid for amino acid residue
 PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
 PT wounds, ulcers
 XX
 PS Claim 17; Page - : 47pp; English.
 XX
 CC The sequence is human fibroblast growth factor, hFGF, mutetin D101Y. The
 CC mutetin is produced from a cDNA encoding hFGF that has been engineered to
 CC allow site directed mutagenesis of hFGF in order to produce mutetins of
 CC hFGF with substitutions of a neutral and/or hydrophobic amino acid for
 CC one or more of the following amino acid residues (numbered from the Gly
 CC at position 2 in the wild type hFGF since the Met at position 1
 CC is removed when the proteins are expressed in E. coli): glutamate 89, or
 CC aspartate 101 or leucine 137. hFGF mutetins are useful for healing wounds,
 CC stimulating cell division in vivo or in vitro, treating ischaemia,
 CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
 CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
 CC mutetins are also useful for treating the above mentioned conditions by
 CC gene therapy techniques.
 CC Note: The present sequence is not shown in the specification but is
 CC derived from the hFGF sequence shown in figure 1.
 XX
 SQ Sequence 157 AA:

Query Match 54.8%; Score 339; DB 22; Length 157;
 Best Local Similarity 100.0%; Pred. No. 4.7e-22;
 Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAASITTLRALPEDGSGAPPPGHFKDPKRLYCKNGGFPLRIHPDGRVDCVREKSDP 113
 DB 1 gtnaagslttlpalpedgsgafrppghfkdpkrllycknggfllrhpdpgrvdcvreksp 60
 OY 114 H 114
 DB 61 h 61

RESULT 13
 AAG65081
 ID AAG65081 standard; Protein; 157 AA.
 AC AAG65081;

XX DT 27-SEP-2001 (first entry)
 XX
 DE human fibroblast growth factor mutetin L137Y.
 XX
 KM Human; fibroblast growth factor; FGF; site directed mutagenesis;
 KM wound healing; ischaemia; peripheral vascular disease; neural injury;
 KM gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutetin;
 KM mutant; L137Y.
 XX
 OS Homo sapiens.
 OS Synthetic.
 XX
 FH Key
 FT Misc-difference 137 /note="Wild-type Leu substituted by Tyr"
 XX
 PN MO200146416-A1.
 XX
 PD 28-JUN-2001.
 XX
 PF 22-DEC-1999; 99WO-US30534.
 XX
 PR 22-DEC-1999; 99WO-US30534.
 XX
 PA (THRE-) 3-DIMENSIONAL PHARM INC.
 XX
 PI Springer BA, Pantollano MW, Sharp CM;
 XX
 DR MPI; 2001-418062/44.
 XX
 PT Novel mutetin of human fibroblast growth factor comprising substitution
 PT of a neutral and/or hydrophobic amino acid for amino acid residue
 PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
 PT wounds, ulcers
 XX
 PS Claim 18; Page - : 47pp; English.
 XX
 CC The sequence is human fibroblast growth factor, hFGF, mutetin L137Y. The
 CC mutetin is produced from a cDNA encoding hFGF that has been engineered to
 CC allow site directed mutagenesis of hFGF in order to produce mutetins of
 CC hFGF with substitutions of a neutral and/or hydrophobic amino acid for
 CC one or more of the following amino acid residues (numbered from the Gly
 CC at position 2 in the wild type hFGF since the Met at position 1
 CC is removed when the proteins are expressed in E. coli): glutamate 89, or
 CC aspartate 101 or leucine 137. hFGF mutetins are useful for healing wounds,
 CC stimulating cell division in vivo or in vitro, treating ischaemia,
 CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
 CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
 CC mutetins are also useful for treating the above mentioned conditions by
 CC gene therapy techniques.
 CC Note: The present sequence is not shown in the specification but is
 CC derived from the hFGF sequence shown in figure 1.
 XX
 SQ Sequence 157 AA:

Query Match 54.8%; Score 339; DB 22; Length 157;
 Best Local Similarity 100.0%; Pred. No. 4.7e-22;
 Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAASITTLRALPEDGSGAPPPGHFKDPKRLYCKNGGFPLRIHPDGRVDCVREKSDP 113
 DB 1 gtnaagslttlpalpedgsgafrppghfkdpkrllycknggfllrhpdpgrvdcvreksp 60
 OY 114 H 114
 DB 61 h 61

RESULT 14
 AAG65082
 ID AAG65082 standard; Protein; 157 AA.

XX AAG65082;
AC 27-SEP-2001 (first entry)
XX
XX human fibroblast growth factor mutetin E89Y/D101Y.
DE
XX Human; fibroblast growth factor; FGF; site directed mutagenesis;
KM wound healing; ischaemia; peripheral vascular disease; neural injury;
KM gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutetin;
KM mutant; E89Y/D101Y.
XX
XX Homo sapiens.
OS Synthetic.
OS
FH Location/Qualifiers
FT Misc-difference 89 /note= "Wild-type Glu substituted by Tyr"
FT Misc-difference 101 /note= "Wild-type Asp substituted by Tyr"
FT
XX MO200146416-A1.
XX
XX 28-JUN-2001.
XX
XX 22-DEC-1999; 99MO-US30534.
XX
XX 22-DEC-1999; 99MO-US30534.
XX
XX (THRE-) 3-DIMENSIONAL PHARM INC.
XX
XX Springer BA, Pantollano MM, Sharp CM;
PI
XX MPI: 2001-418062/44.
XX
XX Novel mutetin of human fibroblast growth factor comprising substitution
PT of a neutral and/or hydrophobic amino acid for amino acid residue
PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
PT wounds, ulcers
XX
XX
XX Claim 19; Page - : 47pp; English.
XX
XX The sequence is human fibroblast growth factor, hFGF, mutetin E89Y/D101Y.
CC The mutetin is produced from a cDNA encoding hFGF that has been engineered
CC to allow site directed mutagenesis of hFGF in order to produce mutetins of
CC hFGF with substitutions of a neutral and/or hydrophobic amino acid for
CC one or more of the following amino acid residues (numbered from the Gly
CC at position 2 in the wild type hFGF since the Met at position 1
CC is removed when the proteins are expressed in E. coli): glutamate 89, or
CC aspartate 101 or leucine 137. hFGF mutetins are useful for healing wounds,
CC stimulating cell division in vivo or in vitro, treating ischaemia,
CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
CC mutetins are also useful for treating the above mentioned conditions by
CC gene therapy techniques.
CC Note: The present sequence is not shown in the specification but is
CC derived from the hFGF sequence shown in figure 1.
XX
XX Sequence 157 AA;
SQ

Query Match 54.8%; Score 339; DB 22; Length 157;
Best Local Similarity 100.0%; Pred. No. 4.7e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 54 GTMAAGSITTLPALPEDGSGGAPPGHFKDPKRLKCNKGSEFLRIHPDGVNDGVREKSDP 113
DB 1 gtnaagsitltpalpdpdgsggaipppghfkdpkrlkcnkgseflrihpdgvrndgvreksdp 60

QY 114 H 114
DB 61 h 61

RESULT 15
ID AAG65083
XX AAG65083 standard; Protein; 157 AA.
XX
XX AAG65083;
AC
XX 27-SEP-2001 (first entry)
XX
XX human fibroblast growth factor mutetin E89Y/L137Y.
DE
XX Human; fibroblast growth factor; FGF; site directed mutagenesis;
KM wound healing; ischaemia; peripheral vascular disease; neural injury;
KM gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutetin;
KM mutant; E89Y/D101Y.
XX
XX Homo sapiens.
OS Synthetic.
OS
FH Location/Qualifiers
FT Misc-difference 89 /note= "Wild-type Glu substituted by Tyr"
FT Misc-difference 137 /note= "Wild-type Leu substituted by Tyr"
FT
XX MO200146416-A1.
XX
XX 28-JUN-2001.
XX
XX 22-DEC-1999; 99MO-US30534.
XX
XX 22-DEC-1999; 99MO-US30534.
XX
XX (THRE-) 3-DIMENSIONAL PHARM INC.
XX
XX Springer BA, Pantollano MM, Sharp CM;
PI
XX MPI: 2001-418062/44.
XX
XX Novel mutetin of human fibroblast growth factor comprising substitution
PT of a neutral and/or hydrophobic amino acid for amino acid residue
PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
PT wounds, ulcers
XX
XX
XX Claim 20; Page - : 47pp; English.
XX
XX The sequence is human fibroblast growth factor, hFGF, mutetin E89Y/L137Y.
CC The mutetin is produced from a cDNA encoding hFGF that has been engineered
CC to allow site directed mutagenesis of hFGF in order to produce mutetins of
CC hFGF with substitutions of a neutral and/or hydrophobic amino acid for
CC one or more of the following amino acid residues (numbered from the Gly
CC at position 2 in the wild type hFGF since the Met at position 1
CC is removed when the proteins are expressed in E. coli): glutamate 89, or
CC aspartate 101 or leucine 137. hFGF mutetins are useful for healing wounds,
CC stimulating cell division in vivo or in vitro, treating ischaemia,
CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
CC mutetins are also useful for treating the above mentioned conditions by
CC gene therapy techniques.
CC Note: The present sequence is not shown in the specification but is
CC derived from the hFGF sequence shown in figure 1.
XX
XX Sequence 157 AA;
SQ

Query Match 54.8%; Score 339; DB 22; Length 157;
Best Local Similarity 100.0%; Pred. No. 4.7e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 54 GTMAAGSITTLPALPEDGSGGAPPGHFKDPKRLKCNKGSEFLRIHPDGVNDGVREKSDP 113
DB 1 gtnaagsitltpalpdpdgsggaipppghfkdpkrlkcnkgseflrihpdgvrndgvreksdp 60

Sun Jun 2 18:28:49 2002

us-09-642-277a-2.rag

QY 114 H 114
Db 61 h 61

Search completed: June 2, 2002, 18:03:40
Job time: 578 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 17:54:22 ; Search time 61.66 Seconds

(without alignments)
589.182 Million cell updates/sec

Title: US-09-642-277a-1

Perfect score: 1118

Sequence: 1 MDDRGRGALPGRLGNGR.....GSKTGPQKAILFLPMASAKS 210

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 562222 seqs, 172994929 residues

Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :
1: SP_ARCHAEA:*
2: SP_BACTERIA:*
3: SP_FUNGI:*
4: SP_HUMAN:*
5: SP_INVERTEBRATE:*
6: SP_MAMMAL:*
7: SP_ORNITHES:*
8: SP_ORNITHES:*
9: SP_ORNITHES:*
10: SP_PLANT:*
11: SP_RODENT:*
12: SP_VIRUS:*
13: SP_VIRIDACEAE:*
14: SP_VIRIDACEAE:*
15: SP_VIRIDACEAE:*
16: SP_VIRIDACEAE:*
17: SP_VIRIDACEAE:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1040	93.0	196	4	P78443
2	805	72.0	170	11	O60487
3	768	68.7	153	11	O925A3
4	704	63.0	155	13	O90Y92
5	682	61.0	130	6	O77767
6	620	55.5	114	4	O00527
7	617	55.2	114	4	O16443
8	585	52.3	111	6	O98DX1
9	567	50.7	125	13	O98TDB
10	561	50.2	108	6	O9N1S7
11	490	43.8	109	11	O925A1
12	486	43.5	112	11	O925A2
13	478	42.8	146	13	O07659
14	476	42.6	101	13	P79706
15	341	30.5	76	6	O9N0V2
16	292	26.1	106	6	O9N1S8

17	249	22.3	196	13	O9YH31	O9YH31 notophthalm
18	245	21.9	124	13	O90X05	O90X05 ambystoma m
19	229	20.5	206	13	O9YED8	O9YED8 oncorhynchus
20	228.5	20.4	191	13	O9YED9	O9YED9 brachydontio
21	224	20.0	111	13	O90X01	O90X01 ambystoma m
22	218	19.5	208	6	O95112	O95112 sus scrofa
23	210.5	18.8	212	11	O9ESL9	O9ESL9 mus musculus
24	210	18.8	208	13	O9PYV1	O9PYV1 xenopus lae
25	206.5	18.5	212	11	O9EST9	O9EST9 ratius norv
26	205.5	18.4	207	11	O9ESL8	O9ESL8 mus musculus
27	205.5	18.4	207	11	O9ER05	O9ER05 mus musculus
28	203.5	18.2	212	13	O42407	O42407 gallus gall
29	203	17.6	208	6	O9SK97	O9SK97 macaca fasc
30	197	17.6	213	6	O9N1B9	O9N1B9 ovls aries
31	195.5	17.5	134	13	O90X03	O90X03 ambystoma m
32	193	17.3	208	4	O96P59	O96P59 homo sapien
33	193	17.3	302	11	O9CSX5	O9CSX5 mus musculus
34	191.5	17.1	186	6	O95147	O95147 mustela vis
35	189.5	16.9	237	13	O91A16	O91A16 gallus gall
36	189	16.9	112	13	O90XP9	O90XP9 ambystoma m
37	188.5	16.9	252	11	O89096	O89096 ratius norv
38	188.5	16.9	253	13	O91A15	O91A15 gallus gall
39	185.5	16.6	185	11	O9ERN5	O9ERN5 ratius norv
40	183.5	16.4	59	4	O9UBK1	O9UBK1 homo sapien
41	180.5	16.1	181	11	O924B4	O924B4 ratius norv
42	179.5	16.1	127	4	O99517	O99517 homo sapien
43	177	15.8	227	13	O9DDN0	O9DDN0 gallus gall
44	175.5	15.7	199	13	O91A13	O91A13 gallus gall
45	174.5	15.6	59	4	O16089	O16089 homo sapien

ALIGNMENTS

RESULT	ID	P78443	PRELIMINARY	PRT	196 AA.
1	P78443				
AC	P78443				
DT	01-MAY-1997	(TEMBLrel. 03, Created)			
DT	01-MAY-1997	(TEMBLrel. 03, Last sequence update)			
DT	01-JUN-2001	(TEMBLrel. 17, Last annotation update)			
DE	21 KDA BASIC FIBROBLAST GROWTH FACTOR (BFGF).				
GN	FGF2.				
OS	Homo sapiens (Human).				
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;				
OC	Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.				
OX	NCBI_TaxID=9606;				
RN	[1]				
RN	SEQUENCE FROM N.A.				
RX	MEDLINE=89184522; PubMed=2538817;				
RA	Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,				
RA	Llaunzun P., Chalou P., Tauber J.P., Analitic F., Smith J.A., Caput D.;				
RT	"High molecular mass forms of basic fibroblast growth factor are				
RT	initiated by alternative CUG codons."				
RL	Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).				
RN	[2]				
RP	SEQUENCE OF 81-168 FROM N.A.				
RX	MEDLINE=93038590; PubMed=1417798;				
RA	Watson R., Anthony F., Pickett M., Lambden P., Masson G.M.,				
RA	Thomas E.J.;				
RT	"Reverse transcription with nested polymerase chain reaction shows				
RT	expression of basic fibroblast growth factor transcripts in human				
RT	granulosa and cumulus cells from in vitro fertilisation patients."				
RL	Biochem. Biophys. Res. Commun. 187:1227-1231(1992).				
EMBL	J04513; AAA52532.1;				
EMBL	S47380; AA013853.1;				
DR	HSSP: P09038; 1BPF.				
DR	InterPro: IPR002209; HBG_FGF.				
DR	InterPro: IPR002348; ILL_HBG_F.				
DR	Pfam: PF00167; FGF_1.				
DR	PRINTS: PR00262; ILL_HBG_F.				
DR	ProDom: PD000831; HBG_FGF; 1.				
DR	SMART: SM00442; FGF; 1.				

DR PROSITE: PS00247; HBGF_FGF; 1.
 SQ SEQUENCE 196 AA; 21203 MW; D6B5447137E60343 CRC64;

Query Match 93.0%; Score 1040; DB 4; Length 196;
 Best Local Similarity 99.5%; Pred. No. 8, 2e-87;
 Matches 195; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

15 LGRGRGRAPRERVGGRGRGRAPRAAPAAAGSRPGAGTAAAGSITTLPALPEGGSG 74
 :|||||
 DB 1 MGRGRGRAPRERVGGRGRGRAPRAAPAAAGSRPGAGTAAAGSITTLPALPEGGSG 60
 :|||||

OY 75 APPGGRPKRLCYCKNGGFFLHPDGRVDGVRKESDPHKLQDAEERGVSIGVCA 134
 :|||||
 DB 61 APPGGRPKRLCYCKNGGFFLHPDGRVDGVRKESDPHKLQDAEERGVSIGVCA 120
 :|||||

OY 135 NRYLAKKEDGRLLASCVTDECFEERLESNNYNTYRSRKYTSWYALKRTGYKLGSKT 194
 :|||||
 DB 121 NRYLAKKEDGRLLASCVTDECFEERLESNNYNTYRSRKYTSWYALKRTGYKLGSKT 180
 :|||||

OY 195 GPGOKAILFLPMASAKS 210
 :|||||
 DB 181 GPGOKAILFLPMASAKS 196
 :|||||

RESULT 2
 ID 060487 PRELIMINARY; PRT: 170 AA.

AC -060487;
 DT 01-NOV-1996 (TREMBLrel, 01, Created)
 DT 01-MAY-2000 (TREMBLrel, 13, Last sequence update)
 DT 01-JUN-2001 (TREMBLrel, 17, Last annotation update)
 DE FIBROBLAST GROWTH FACTOR 2 (FGF-2) (FIBROBLAST GROWTH FACTOR, BASIC)
 DE - (BFGF) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN)
 DE (PROSTATIC GROWTH FACTOR) (FRAGMENTS).
 GN FGF2.
 OS Cavia porcellus (Guinea pig).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Hystriocognathi; Caviidae; Cavia.
 OX NCBI_Taxid-10141;
 RN 111
 RP SEQUENCE OF 53-170 FROM N.A.
 RC TISSUE-PROSTATE;
 RA Ricciardelli C.;
 RL Submitted (JAN-1996) to the EMBL/Genbank/DBJ databases.

RN 121
 RP SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING.
 RX MEDLINE-89273588; PubMed-2730645;
 RA Sommer A., Moscatelli D., Rifkin D.B.;
 RT "An amino-terminally extended and post-translationally modified form of a 25MD basic fibroblast growth factor";
 RL Biochem. Biophys. Res. Commun. 160:1267-1274(1989).

RN 131
 RP PARTIAL SEQUENCE, AND METHYLATION.
 RX MEDLINE-9132114; PubMed-1713785;
 RA Burgess W.H., Bizik J., Mehlman T., Quarto N., Rifkin D.B.;
 RT "Direct evidence for methylation of arginine residues in high molecular weight forms of basic fibroblast growth factor";
 RL Cell Regul. 2:87-93(1991).

RN 141
 RP CHARACTERIZATION.
 RC TISSUE-BRAIN;
 RX MEDLINE-87289686; PubMed-3475702;
 RA Moscatelli D., Joseph-Silverstein J., Manejias R., Rifkin D.B.;
 RT "Mr 25,000 heparin-binding protein from guinea pig brain is a high molecular weight form of basic fibroblast growth factor";
 RL Proc. Natl. Acad. Sci. U.S.A. 84:5778-5782(1987).

CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOTACTANT FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION, PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS

CC SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO
 CC ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).
 CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFRI AND AT LEAST
 CC ONE HEPARAN SULFATE (BY SIMILARITY).
 CC -1- ALTERNATIVE PRODUCTS: AT LEAST TWO ISOFORMS: 18 KDA AND 25 KDA
 CC (SHOWN HERE); MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION
 CC INITIATION SITES. BOTH FORMS ARE ACTIVE.
 CC -1- FTM: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLE).
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC -1- CAUTION: THIS IS A CONCEPTUAL TRANSLATION; MANY FRAMESHIFTS WERE
 CC INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE
 CC SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF
 CC PARTIAL AMINO-ACID SEQUENCING.
 CC EMBL: L75974; AAA85394.1; ALT_FRAME.
 CC HSRP: P09038; IBLA
 DR HSRP; P09038; IBLA
 DR InterPro; IPR002209; HBGF_FGF.
 DR InterPro; IPR002348; IIL-HBGF.
 DR Pfam; PF00167; FGF_1.
 DR PRINTS; PR00262; IILHBGF.
 DR ProDom; PD000831; HBGF_FGF_1.
 DR SMART; SM00442; FGF_1.
 DR PROSITE; PS00247; HBGF_FGF; 1.
 DR Growth factor; Mitogen; Vascularization; Heparin-binding;
 KW Alternative initiation; Methylation; Phosphorylation;
 KW Developmental protein.
 KW NON_TER 1
 FT 1
 FT NON_CONS 15 16
 FT CHAIN <1 170
 FT CHAIN 22 170
 FT INIT_MET 22 22
 FT DOMAIN 11 14
 FT NON_CONS 50 51
 FT SITE 61 63
 FT SITE 103 105
 FT BINDING 50 51
 FT BINDING 105 105
 FT BINDING 143 159
 FT MOD_RES 4 4
 FT MOD_RES 6 6
 FT MOD_RES 8 8
 FT MOD_RES 88 88
 FT MOD_RES 136 136
 SQ SEQUENCE 170 AA; 18354 MW; F36BDC736E5FEBC CRC64;

Query Match 72.0%; Score 805; DB 11; Length 170;
 Best Local Similarity 85.3%; Pred. No. 1, 5e-65;
 Matches 157; Conservative 4; Mismatches 9; Indels 14; Gaps 2;

OY 27 VGRGRGRGRAPRAAPAAAGSRPGAGTAAAGSITTLPALPEGGSGAFPPGFDPKR 86
 :|||||
 DB 1 VGRGRGRGRAPRAAPAAAGSRPGAGTAAAGSITTLPALPEGGSGAFPPGFDPKR 50
 :|||||

OY 87 LYCKNGGFFLHPDGRVDGVRKESDPHKLQDAEERGVSIGVCAANRYLAKKEDGR 146
 :|||||
 DB 51 -NGGFFLHPDGRVDGVRKESDPHKLQDAEERGVSIGVCAANRYLAKKEDGR 106
 :|||||

OY 147 LASKCVTDECFEERLESNNYNTYRSRKYTSWYALKRTGYKLGSKTGPQKAILFLPM 206
 :|||||
 DB 107 LASKCVTDECFEERLESNNYNTYRSRKYTSWYALKRTGYKLGSKTGPQKAILFLPM 166
 :|||||

OY 207 SAKS 210
 :|||||
 DB 167 SAKS 170
 :|||||

RESULT 3
 ID 0925A3 PRELIMINARY; PRT: 153 AA.

AC 0925A3;
 DT 01-DEC-2001 (TREMBLrel, 19, Created)
 DT 01-DEC-2001 (TREMBLrel, 19, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel, 19, Last annotation update)

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DE DE      FIBROBLAST GROWTH FACTOR 2.
GN GN      FGF2.
OS OS      Mus musculus (Mouse).
OC OC      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC OC      Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX OX      NCBI_Taxid=10090;
RN RN      [1]
RP RP      SEQUENCE FROM N.A.
RC RC      STRAIN=FVB/N;
RA RA      Dicks R.P., Grief A.E.;
RT RT      "Multiple novel variants of fibroblast growth factor 2 transcripts are
RT RT      expressed in mouse embryos.";
RL RL      Submitted (FEB-2001) to the EMBL/GenBank/DDBJ databases.
DR DR      EMBL: AY027551; AAK52308.1;
SQ SQ      SEQUENCE 153 AA; 17024 MW; AD8163CDBFA2FAAB CRC64;

Query Match      68.7%; Score 768; DB 11; Length 153;
Best Local Similarity 94.2%; Pred. No. 3,1e-62;
Matches 146; Conservative 5; Mismatches 2; Indels 2; Gaps 2;

QY 56 MAAGSITLPLALPEDGSGCAFPFGHFKDPKRLCYCKNGGFLRIHPDGVNDGVRKSDPHI 115
DB 1 MAAGSITLPLALPEDGCA-AFPFGHFKDPKRLCYCKNGGFLRIHPDGVNDGVRKSDPHV 59
QY 116 KIQLOAERGVYSIKGVCANRYLANKEDGRLLASCVTDECFEERLESNNYNTYRSRY 175
DB 60 KIQLOAERGVYSIKGVCANRYLANKEDGRLLAS-CVTECECFEERLESNNYNTYRSRY 118
QY 176 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSANS 210
DB 119 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSANS 153

RESULT 4
O90Y92 PRELIMINARY; PRT; 155 AA.
AC O90Y92;
DT 01-DEC-2001 (TREMBlrel. 19, Created)
DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)
DE DE      FIBROBLAST GROWTH FACTOR-2.
GN GN      FGF-2.
OS OS      Cynops pyrrhogaster (Japanese common newt).
OC OC      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC OC      Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
OX OX      NCBI_Taxid=8330;
RN RN      [1]
RP RP      SEQUENCE FROM N.A.
RA RA      Susaki K., Nakamura K., Chiba C., Saito T.;
RT RT      "Expression of FGF2 during newt retinal development and
RT RT      regeneration.";
RL RL      Submitted (JUL-2001) to the EMBL/GenBank/DDBJ databases.
RR RR      EMBL: AB064664; BAB63249.1;
SQ SQ      SEQUENCE 155 AA; 17278 MW; 2B583058538AB8D9 CRC64;

Query Match      63.0%; Score 704; DB 13; Length 155;
Best Local Similarity 85.8%; Pred. No. 2e-56;
Matches 133; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

QY 56 MAAGSITLPLALPEDGSGCAFPFGHFKDPKRLCYCKNGGFLRIHPDGVNDGVRKSDPHI 115
DB 1 MAAGSITLPLALPEDGNGGTFTPGGGFKPKRLCYCKNGGFLRIHPDGVNDGVRKSDSYI 60
QY 116 KIQLOAERGVYSIKGVCANRYLANKEDGRLLASCVTDECFEERLESNNYNTYRSRY 175
DB 61 KIQLOAERGVYSIKGVCANRYLANKEDGRLLAKLWITIDECFFEERLESNNYNTYRSRY 120
QY 176 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSANS 210
DB 121 SDWYVALKRTGOYKNGSKTGAQKAILFLPMSANS 155

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RESULT	5.			
ID	077767	PRELIMINARY;	PRT;	130 AA.
AC	077767;			
DT	01-NOV-1998	(Tremblrel. 08, Created)		
DT	01-NOV-1998	(Tremblrel. 08, Last sequence update)		
DT	01-JUN-2001	(Tremblrel. 17, Last annotation update)		
DE	BASIC FIBROBLAST GROWTH FACTOR (BFGF) (FGF-2) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN) (PROSTATIC GROWTH FACTOR) (FRAGMENTS).			
DE	BFGF.			
GN	Canis familiaris (dog).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.			
OX	NCHI_Taxid:9615;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	TISSUE-ADRENAL GLAND;			
RA	Trochta O.A.; Jacobs R.M.; Lamarre J.;			
RI	*The role of BFGF in canine Hemangiosarcoma.*;			
RL	Submitted (Apr-1998) to the EMBL/Genbank/DBJ databases.			
CC	-1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION, PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).			
CC	-1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST ONE HEPARAN SULFATE (BY SIMILARITY).			
CC	-1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.			
CC	EMBL; AF060562; AAC35912.1; -			
DR	HSSP; P09038; 1BFF.			
DR	InterPro; IPR002209; HBGF_FGF.			
DR	InterPro; IPR002348; IIL_HBGF.			
DR	Pfam; PF00167; FGF; 1.			
DR	PRINTS; PR00362; IILHBGF.			
DR	PRODOM; PD000831; HBGF_FGF; 1.			
DR	SMART; SM00442; FGF; 1.			
DR	PROSITE; PS00247; HBGF_FGF; 1.			
KW	Growth factor; Mitogen; Vascularization; Heparin-binding; Phosphorylation; Developmental protein.			
FT	NON_TER	1	1	
FT	SITE	21	23	CELL ATTACHMENT SITE (POTENTIAL).
FT	SITE	63	65	CELL ATTACHMENT SITE (POTENTIAL).
FT	BINDING	10	11	HEPARIN (BY SIMILARITY).
FT	BINDING	65	65	HEPARIN (BY SIMILARITY).
FT	BINDING	103	119	HEPARIN (BY SIMILARITY).
FT	MOD_RES	48	48	PHOSPHORYLATION (BY SIMILARITY).
FT	MOD_RES	96	96	PHOSPHORYLATION (BY SIMILARITY).
FT	NON_TER	130	130	
SO	SEQUENCE	130 AA;	14902 MW;	219008765878FAEA CRC64;
Query Match	Best Local Similarity	61.0%;	Score 682;	DB 6;
Matches	127; Conservative	97.7%;	Pred. No. 1.6e-54;	Length 130;
	2; Mismatches	1;	Indels	9;
			Gaps	0;
QY	81 FKDPRLCKCKNGGFLRIHPDGRVDGVREKSDPHILKILDLQAEERGVSISKVCANRYLAM	140		
DB	1 FKDPRLCKCKNGGFLRIHPDGRVDGVREKSDPHVHKLQLQAEERGVSISKVCANRYLAM	60		
QY	141 KEDGILLASKCVTDCCFFERLESNNYTYTSRKITSYVALKRGQYKLLSGPGGKA	200		
DB	61 KEDGILLASKCVTDCCFFERLESNNYTYTSRKITSYVALKRGQYKLLSGPGGKA	120		
QY	201 ILLFLPMSAKS	210		
DB	121 ILLFLPMSAKS	130		

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RESULT 6
ID 000527 PRELIMINARY; PRT; 114 AA.
AC 000527;
DT 01-JAN-1998 (TREMblrel. 05, Created)
DT 01-JAN-1999 (TREMblrel. 09, Last sequence update)
DT 01-JUN-2001 (TREMblrel. 17, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
GN FGF-2 OR FGF2.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
ON NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-BLOOD:
RA Handschug K., Glaeser C.;
RT "Polymorphism in the 5' untranslated region of the FGF-2 gene: transition
RT G to A on position 19 and transversion G to C on position 97."
RL Submitted (NOV-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; Y13468; CAA73868.1; -.
DR EMBL; AJ250952; CAB61690.1; -.
DR HSSP; P09038; 1BFF.
DR InterPro: IPR002209; HBG_FGF.
DR Pfam; PF00167; FGF; 1.
DR ProDom; PD000831; HBG_FGF; 1.
FT -NON_TER 114
SQ SEQUENCE 114 AA; 11688 MW; 98DC6381C1960CID CRC64;

Query Match
Best local similarity 100.0%; Pred. No. 5.9e-49;
Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDRGRALPGRLGGGRGRAPERYGGRGRTAAPRAAPARARSPPAGTMAAGS 60
DB 1 MGDRGRALPGRLGGGRGRAPERYGGRGRTAAPRAAPARARSPPAGTMAAGS 60

QY 61 ITTLPALPEDGSGAFPFGHFKDPKRLYCKNGFFLRHHPGRVDGVRKSDPH 114
DB 61 ITTLPALPEDGSGAFPFGHFKDPKRLYCKNGFFLRHHPGRVDGVRKSDPH 114

RESULT 7
ID 016443 PRELIMINARY; PRT; 114 AA.
AC 016443;
DT 01-NOV-1996 (TREMblrel. 01, Created)
DT 01-NOV-1996 (TREMblrel. 01, Last sequence update)
DT 01-JUN-2001 (TREMblrel. 17, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
ON NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RC MEDLINE-92152654; PubMed-1785797;
RA Florjanczyk R.Z., Shihata F., Barankiewicz T., Baird A.,
RA Gonzalez A.M., Florjanczyk E., Shah N.;
RT "Basic fibroblast growth factor gene expression."
RT Ann. N. Y. Acad. Sci. 638:109-126(1991).
DR EMBL; S81809; AAB21432.2; -.
DR HSSP; P09038; 1BFF.
DR InterPro: IPR002209; HBG_FGF.
DR Pfam; PF00167; FGF; 1.

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DR ProDom; PD000831; HBG_FGF; 1.
FT NON_TER 1
FT NON_TER 114
SQ SEQUENCE 114 AA; 11670 MW; 88DCA49C774D61AA CRC64;

Query Match
Best local similarity 99.1%; Pred. No. 1.1e-48;
Matches 113; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDRGRALPGRLGGGRGRAPERYGGRGRTAAPRAAPARARSPPAGTMAAGS 60
DB 1 LGDRGRALPGRLGGGRGRAPERYGGRGRTAAPRAAPARARSPPAGTMAAGS 60

QY 61 ITTLPALPEDGSGAFPFGHFKDPKRLYCKNGFFLRHHPGRVDGVRKSDPH 114
DB 61 ITTLPALPEDGSGAFPFGHFKDPKRLYCKNGFFLRHHPGRVDGVRKSDPH 114

RESULT 8
ID 098DX1 PRELIMINARY; PRT; 111 AA.
AC 098DX1;
DT 01-JUN-2001 (TREMblrel. 17, Created)
DT 01-JUN-2001 (TREMblrel. 17, Last sequence update)
DT 01-DEC-2001 (TREMblrel. 19, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;
OC Cercopithecoidea; Macaca.
ON NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RA Sekhon H.S., Keller J.K., Spindel E.R.;
RT "Alterations in Collagen and Elastin Gene Expression in Fetal
RT Pulmonary Vessels in Monkeys Following Prenatal Nicotine Exposure: A
RT Possible Role of alpha7 Nicotinic Acetylcholine Receptor in Persistent
RT Pulmonary Hypertension."
RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF251270; AAK37962.1; -.
DR HSSP; P09038; 2FGF.
DR InterPro: IPR002209; HBG_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBG_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBG_FGF; 1.
FT NON_TER 1
FT NON_TER 1
FT NON_TER 111
SQ SEQUENCE 111 AA; 12633 MW; EC0967A5261F5487 CRC64;

Query Match
Best local similarity 100.0%; Pred. No. 8.6e-46;
Matches 111; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 98 IHPDGRVDGVRKSDPHIKQLQAEERGVVSINKVCANRYLAMKEDRLASKCVTDECF 157
DB 1 IHPDGRVDGVRKSDPHIKQLQAEERGVVSINKVCANRYLAMKEDRLASKCVTDECF 157

QY 158 FFERLESNNNTYRSRYTSYVALKRTGQYKLGSKTGROKALFLPMSA 208
DB 61 FFERLESNNNTYRSRYTSYVALKRTGQYKLGSKTGROKALFLPMSA 111

RESULT 9
ID 098TD8 PRELIMINARY; PRT; 125 AA.
AC 098TD8;
DT 01-JUN-2001 (TREMblrel. 17, Created)
DT 01-JUN-2001 (TREMblrel. 17, Last sequence update)

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DT 01-DEC-2001 (TEMBLrel. 19, last annotation update)
DE FIBROBLAST GROWTH FACTOR-2 (FRAGMENT).
GN FGF-2.
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RA Mzuno N., Hayashi T., Kondoh H., Okamoto M.;
RT "Cynops fibroblast growth factor-2.";
RU Submitted (OCT-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AB049625; BAB40835.1;
DR HSSP; P09038; 1BFF.
DR Interpro; IPR002209; HBGF_FGF.
DR Pfam; PR002348; ILL_HBGF.
DR PRINTS; PR00262; ILHBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON TER
SQ SEQUENCE 125 AA; 14244 MW; 5C27F41DC6E60C13 CRC64;

Query Match
Best Local Similarity 87.1%; Score 567; DB 13; Length 125;
Matches 108; Conservative 7; Mismatches 9; Indels 0; Gaps 0;

OY 87 LYCKNGGFELRIHFDGVGVREKSDPHIKILOAERGVSIGVCANRYLAMKEDGRL 146
DB 2 LYCKNGGFELRIHFDGVGVREKSDPHIKILOAERGVSIGVCANRYLAMKEDGRL 61
OY 147 LASCVCVTDECFEERLESNNYRSRKYTSWYVALKRTGQYKLGSTGPGOKAILFLPM 206
DB 62 MALKWITDECFEERLESNNYRSRKYTSWYVALKRTGQYKLGSTGPGOKAILFLPM 121
OY 207 SAKS 210
DB 122 SAKS 125

RESULT 10
O9N1S7 PRELIMINARY; PRT; 108 AA.
ID O9N1S7;
AC O9N1S7;
DT 01-OCT-2000 (TEMBLrel. 15, Created)
DT 01-OCT-2000 (TEMBLrel. 15, last sequence update)
DT 01-DEC-2001 (TEMBLrel. 19, last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
GN BFGF.
OS Capreolus capreolus (Roe deer).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidae;
OC Cervidae; Odocoileinae; Capreolus.
OX NCBI_TaxID=9858;
RN [1]
RP SEQUENCE FROM N.A.
RA MEDLINE=20532861; PubMed=11078967;
RT Wagener A., Blotner S., Goritz F., Fickel J.;
RT "Detection of growth factors in the testis of roe deer (Capreolus capreolus).";
RL Anim. Reprod. Sci. 64:65-75(2000).
DR EMBL; AF152587; AAF73226.1;
DR HSSP; P09038; 4FGF.
DR Interpro; IPR002209; HBGF_FGF.
DR Pfam; PR002348; ILL_HBGF.
DR PRINTS; PR00262; ILHBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.

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FT NON TER 1
FT NON TER 108
SQ SEQUENCE 108 AA; 12399 MW; 6BC7B7244214567E CRC64;

Query Match
Best Local Similarity 50.2%; Score 561; DB 6; Length 108;
Matches 106; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

OY 97 RIHFDGVGVREKSDPHIKILOAERGVSIGVCANRYLAMKEDGRLASCYTDDEC 156
DB 1 RIHFDGVGVREKSDPHIKILOAERGVSIGVCANRYLAMKEDGRLASCYTDDEC 60
OY 157 FFEERLESNNYRSRKYTSWYVALKRTGQYKLGSTGPGOKAILFL 204
DB 61 FFEERLESNNYRSRKYTSWYVALKRTGQYKLGSTGPGOKAILFL 108

RESULT 11
O925A1 PRELIMINARY; PRT; 109 AA.
ID O925A1;
AC O925A1;
DT 01-DEC-2001 (TEMBLrel. 19, Created)
DT 01-DEC-2001 (TEMBLrel. 19, last sequence update)
DE FIBROBLAST GROWTH FACTOR-2.
GN FGF2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RA Dicks R.P., Griep A.E.;
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are
RT expressed in mouse embryos.";
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY027558; AAK52310.1;
SQ SEQUENCE 109 AA; 12388 MW; 61074ADE3303C860 CRC64;

Query Match
Best Local Similarity 43.8%; Score 490; DB 11; Length 109;
Matches 94; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 115 IKILOAERGVSIGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYTSRKR 174
DB 14 IKILOAERGVSIGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYTSRKR 73
OY 175 YTSWYVALKRTGQYKLGSTGPGOKAILFLPM SAKS 210
DB 74 YTSWYVALKRTGQYKLGSTGPGOKAILFLPM SAKS 109

RESULT 12
O925A2 PRELIMINARY; PRT; 112 AA.
ID O925A2;
AC O925A2;
DT 01-DEC-2001 (TEMBLrel. 19, Created)
DT 01-DEC-2001 (TEMBLrel. 19, last sequence update)
DT 01-DEC-2001 (TEMBLrel. 19, last annotation update)
DE FIBROBLAST GROWTH FACTOR 2.
GN FGF2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RA Dicks R.P., Griep A.E.;
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are

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RT expressed in mouse embryos."
 RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AY027557; AAK52309.1; -
 SQ SEQUENCE 112 AA; 12725 MW; B0057ABE0257CCB CRC64;

Query Match 43.5%; Score 486; DB 11; Length 112;
 Best Local Similarity 97.9%; Pred. No. 8.6e-37;
 Matches 93; Conservative 2; Mismatches 0; Indels 0; Gaps 0;
 Oy 116 KLOLAERGVSTGVCANRYLAKEDGRLASCYDCEFFERLESNNYTSRKY 175
 Db 18 KLOLAERGVSTGVCANRYLAKEDGRLASCYDCEFFERLESNNYTSRKY 77
 Oy 176 TSMYALKRTGYKLGSKTGPCOKAILFLPMSAKS 210
 Db 78 SSMYALKRTGYKLGSKTGPCOKAILFLPMSAKS 112

RESULT 13
 007659 PRELIMINARY; PRT; 146 AA.
 ID 007659
 AC 007659
 DT 01-NOV-1996 (TREMblrel. 01, Created)
 DT 01-NOV-1996 (TREMblrel. 01, Last sequence update)
 DT 01-JUN-2001 (TREMblrel. 17, Last annotation update)
 DE FIBROBLAST GROWTH FACTOR.
 GN bFGF.
 OS Gallus gallus (Chicken).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Archosauaria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
 OC Gallus.
 NX NCBI_TaxID=9031;
 RN 11
 RP SEQUENCE FROM N.A.
 RX MEDLINE=93246053; PubMed=7683281;
 RA Borja A.Z., Zeller R., Meljers C.;
 RT "Expression of alternatively spliced bFGF first coding exons and
 RT antisense mRNAs during chicken embryogenesis."
 RL Dev. Biol. 157:110-118(1993).
 RN 121
 RP SEQUENCE OF 52-85 FROM N.A.
 RX MEDLINE=90382254; PubMed=2401202;
 RA Mitrani E., Gruenbaum Y., Shohat H., Ziv T.;
 RT "Fibroblast growth factor during mesoderm induction in the early chick
 RT embryo."
 RL Development 109:387-393(1990).
 DR EMBL; M95706; AAA48616.1; -
 DR EMBL; X56804; CAA40139.1; -
 DR HSSP; P09038; 2BPH.
 DR InterPro: IPR002209; HGF_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam; PF00167; FGF_1.
 DR PRINTS; PR00262; IL1HBGF.
 DR ProDom; PD000831; HBGF_FGF_1.
 DR SMART; SM00442; FGF_1.
 DR PROSITE; PS00247; HBGF_FGF_1.
 SQ SEQUENCE 146 AA; 16182 MW; A7CB97BCB456E247 CRC64;

Query Match 42.8%; Score 478; DB 13; Length 146;
 Best Local Similarity 57.2%; Pred. No. 6.3e-36;
 Matches 103; Conservative 11; Mismatches 22; Indels 44; Gaps 4;
 Oy 32 RGRGAAPRA-APARGRPDAGTMAAGSTTLPALPEDGGSGAFPPGHPDPRRLYCK 90
 Db 10 RGTAVGAPRVSPDGA-----PVPSLSPDGGV----- 36
 Oy 91 NGGFRIHPDGRVGVREKSDPHIKLOLAERGVSTGVCANRYLAKEDGRLASK 150
 Db 37 ---LWERVRPDERVSAM-----VKLOLAERGVSTGVCANRYLAKEDGRLALK 86
 Oy 151 CVTDECFERLESNNYTSRKYTSYVALKRTGYKLGSKTGPCOKAILFLPMSAKS 210

Db 87 CATECFERLESNNYTSRKYSDMYVALKRTGYKLPKTPGPCOKAILFLPMSAKS 146

RESULT 14
 P79706 PRELIMINARY; PRT; 101 AA.
 ID P79706
 AC P79706
 DT 01-MAY-1997 (TREMblrel. 03, Created)
 DT 01-MAY-1997 (TREMblrel. 03, Last sequence update)
 DT 01-DEC-2001 (TREMblrel. 19, Last annotation update)
 DE BASIC FGF (FRAGMENT).
 OS Cynops pyrrhogaster (Japanese common newt).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
 NX NCBI_TaxID=8330;
 RN 11
 RP SEQUENCE FROM N.A.
 RC TISSUE=EMBRYO;
 RA Suzuki A.S., Tabata T., Sakaguchi K., Takabatake T., Takeshima K.,
 RA Kaneda T.;
 RT "Serial expression of the genes in a mesodermally ectoderms of
 RT early Cynops gastrula."
 RL Submitted (NOV-1996) to the EMBL/GenBank/DBJ databases.
 DR EMBL; D89443; BAA13958.1; -
 DR HSSP; P09038; 4FGF.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam; PF00167; FGF_1.
 DR PRINTS; PR00262; IL1HBGF.
 DR ProDom; PD000831; HBGF_FGF_1.
 DR SMART; SM00442; FGF_1.
 DR PROSITE; PS00247; HBGF_FGF_1.
 FT NON_TER 1 1
 FT NON_TER 101 101
 SQ SEQUENCE 101 AA; 11907 MW; 7AA16C866C1F457A CRC64;

Query Match 42.6%; Score 476; DB 13; Length 101;
 Best Local Similarity 87.1%; Pred. No. 6.1e-36;
 Matches 88; Conservative 7; Mismatches 6; Indels 0; Gaps 0;
 Oy 84 PKRLCKNGFELRIHPDGRVGVREKSDPHIKLOLAERGVSTGVCANRYLAKED 143
 Db 1 PKRLCKNGFELRIHPDGRVGVREKSDPHIKLOLAERGVSTGVCANRYLAKED 60
 Oy 144 GRLASKCVTDECFERLESNNYTSRKYTSYVALK 184
 Db 61 GRMLAKMTTDECFERLESNNYTSRKYSDMYVALK 101

RESULT 15
 Q9NOV2 PRELIMINARY; PRT; 76 AA.
 ID Q9NOV2
 AC Q9NOV2
 DT 01-OCT-2000 (TREMblrel. 15, Created)
 DT 01-OCT-2000 (TREMblrel. 15, Last sequence update)
 DT 01-DEC-2001 (TREMblrel. 19, Last annotation update)
 DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
 GN FGF-2.
 OS Ovis aries (Sheep).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Bovidea;
 OC Bovidae; Caprinae; Ovis.
 NX NCBI_TaxID=9940;
 RN 11
 RP SEQUENCE FROM N.A.
 RC TISSUE=FETAL PLACENTAL ARTERY;
 RA Zheng J., Tsol S.C., Magness R.R.;
 RT "Growth factor expression in ovine fetal placental artery endothelial
 RT cells."
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AF250027; AAF65566.1; -

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Page 7

DR HSSP; P09038; 4FGF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 76
SQ SEQUENCE 76 AA; 8796 MW; 7D984E2F97453B20 CRC64;

Query Match 30.5%; Score 341; DB 6; Length 76;
Best Local Similarity 88.0%; Pred. No. 7.9e-24;
Matches 66; Conservative 1; Mismatches 0; Indels 8; Gaps 1;
QY 112 DPHIKLQDAERGVASIKGVCANRYLAMKEDGRLLASKCVTDECFEFERLESNNYNTYR 171
Db 1 DPHIKLQDAERGVASIKGVCANRYLAMKEDGRLLASKCVTDECFEFERLESNNYNTYR 60
QY 172 SRKT-----TSW 178
Db 61 SRKYSQIVCGTETNW 75

Search completed: June 2, 2002, 18:04:49
Job time: 627 sec

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OK protein - protein search, using sw model

Run on: June 2, 2002, 18:01:12 ; Search time 20.21 Seconds

(without alignments)
402,331 Million cell updates/sec

Title: US-09-642-277A-1

Sequence: 1118
1 MGDGRGRALPGRLGGRGCR.....GSKTGRGKRALFLPMKSAKS 210

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database: SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	826	73.9	155	1	FGF2_HUMAN
2	817	73.1	155	1	FGF2_BOVIN
3	811	72.5	155	1	FGF2_SHEEP
4	798.5	71.4	154	1	FGF2_RAT
5	783.5	70.1	154	1	FGF2_MOUSE
6	760.5	68.0	156	1	FGF2_MONDO
7	759	67.9	158	1	FGF2_CHICK
8	738	66.0	137	1	FGF2_CHICK
9	687	61.4	155	1	FGF2_RABBIT
10	418.5	37.4	155	1	FGF2_XENLA
11	410.5	36.7	155	1	FGF1_MESAU
12	409.5	36.6	155	1	FGF1_CHICK
13	404.5	36.2	155	1	FGF1_HUMAN
14	403.5	36.1	152	1	FGF1_MOUSE
15	393.5	35.2	155	1	FGF1_PIG
16	278.5	24.9	194	1	FGF1_BOVIN
17	272.5	24.4	206	1	FGF4_CHICK
18	271	24.2	256	1	FGF4_HUMAN
19	267.5	23.9	266	1	FGF4_BRARE
20	265.5	23.7	266	1	FGF4_BOVIN
21	263	23.5	208	1	FGF5_RAT
22	262	23.4	264	1	FGF6_MOUSE
23	259.5	23.3	208	1	FGF6_HUMAN
24	259.5	23.2	202	1	FGF4_MOUSE
25	255.5	22.9	268	1	FGF5_HUMAN
26	251	22.5	220	1	FGF3_CHICK
27	243.5	21.8	239	1	FGF3_HUMAN
28	242.5	21.7	245	1	FGF3_MOUSE
29	241	21.6	237	1	FGF3_XENLA
30	239	21.4	187	1	FGF4_XENLA
31	234.5	21.0	192	1	FGF9_XENLA
32	219	19.6	208	1	FGF9_HUMAN
33	219	19.6	208	1	FGF9_MOUSE

34	219	19.6	208	1	FGF9_RAT	P36364 ratnus norv
35	218.5	19.5	211	1	FGF8_HUMAN	Q9np95 homo sapien
36	216.5	19.4	209	1	FGF9_XENLA	Q91875 xenopus lae
37	210.5	18.8	194	1	FGF7_CANFA	P79150 canis famli
38	209.5	18.7	194	1	FGF7_MOUSE	P36363 mus musculu
39	207.5	18.6	194	1	FGF7_MOUSE	P21781 homo sapien
40	207.5	18.6	194	1	FGF7_SHEEP	P46808 ovis arles
41	206.5	18.5	207	1	FGF8_RAT	Q54769 ratlus norv
42	205.5	18.4	207	1	FGF8_HUMAN	O43320 homo sapien
43	205	18.3	215	1	FGF4_RAT	P70492 ratlus norv
44	204.5	18.3	194	1	FGF7_PIG	Q9198 sus scrofa
45	203	18.2	208	1	FGF4_HUMAN	O15520 homo sapien

ALIGNMENTS

RESULT	ID	STANDARD	PRT	155 AA
1	FGF2_HUMAN			
1	FGF2_HUMAN			
AC	P09038:			
DT	01-NOV-1988 (Rel. 09, Created)			
DT	01-NOV-1988 (Rel. 09, Last sequence update)			
DT	01-MAR-2002 (Rel. 41, Last annotation update)			
DE	Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).			
GN	FGF2 OR FGF8.			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.			
OX	NCBI_Taxid=9606;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=87053817; PubMed=3780670;			
RA	Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,			
RA	Gospodarowicz D., Fiddes J.C.;			
RT	"Human basic fibroblast growth factor: nucleotide sequence and genomic organization.";			
RT	EMBO J. 5:2523-2528(1986).			
RN	[2]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=87217066; PubMed=3472745;			
RA	Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;			
RA	Ritkin D.B.;			
RT	"A form of human basic fibroblast growth factor with an extended amino terminus.";			
RT	Biochem. Biophys. Res. Commun. 144:543-550(1987).			
RN	[4]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=87162468; PubMed=2435575;			
RA	Kurokawa T., Sasada R., Iwanne K.,			
RA	"Cloning and expression of cDNA encoding human basic fibroblast growth factor.";			
RT	FEBS Lett. 213:189-194(1987).			
RN	[5]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=89184522; PubMed=2538817;			
RA	Prats H., Kagnad M., Prats A.C., Klagsbrun M., Lelias J.M.,			
RA	Lilanzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A.,			
RA	Capit D.;			
RT	"High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.";			
RT	Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).			
RN	[6]			
RP	SEQUENCE OF 10-35.			
RX	MEDLINE=86275260; PubMed=3732516;			

RA Gautschi P., Frater-Schroeder M., Boehlen P.;
 RT "Partial molecular characterization of endothelial cell mitogens from
 RT human brain: acidic and basic fibroblast growth factors.";
 RL FRS Lett. 204:203-207(1986).
 RN [17]
 RP SEQUENCE OF 10-39.
 RX MEDLINE-86186784; PubMed-3964259;
 RA Glenez-Galligo G., Conn G., Hatcher V.B., Thomas K.A.;
 RT "Human brain-derived acidic and basic fibroblast growth factors:
 RT amino terminal sequences and specific mitogenic activities.";
 RL Biochem. Biophys. Res. Commun. 135:541-548(1986).
 RN [18]
 RP SEQUENCE OF 2-22.
 RX MEDLINE-87156686; PubMed-2435284;
 RA Story M.T., Esch F., Shimazaki S., Sasse J., Jacobs S.C., Lawson R.K.;
 RT "Amino-terminal sequence of a large form of basic fibroblast growth
 RT factor isolated from human benign prostatic hyperplastic tissue.";
 RL Biochem. Biophys. Res. Commun. 142:702-709(1987).
 RN [19]
 RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
 RX MEDLINE-91195367; PubMed-1707542;
 RA Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;
 RT "Three-dimensional structure of human basic fibroblast growth
 RT factor.";
 RL Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
 RN [110]
 RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
 RX MEDLINE-94004464; PubMed-7691311;
 RA Eriksson A.E., Cousens L.S., Matthews B.W.;
 RT "Refinement of the structure of human basic fibroblast growth factor
 RT at 1.6-A resolution and analysis of presumed heparin binding sites by
 RT selenate substitution.";
 RL Protein Sci. 2:1274-1284(1993).
 RN [111]
 RP X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
 RX MEDLINE-91195368; PubMed-1849568;
 RA Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;
 RT "Three-dimensional structure of human basic fibroblast growth factor,
 RT a structural homolog of interleukin 1 beta.";
 RL Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
 RN [112]
 RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
 RX MEDLINE-92121151; PubMed-1769963;
 RA Ago H., Kitagawa Y., Fujishima A., Matsura Y., Katsube Y.;
 RT "Crystal structure of basic fibroblast growth factor at 1.6-A
 RT resolution.";
 RL J. Biochem. 110:360-363(1991).
 RN [113]
 RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
 RX MEDLINE-91095983; PubMed-1702556;
 RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
 RT "Three-dimensional structures of acidic and basic fibroblast growth
 RT factors.";
 RL Science 251:90-93(1991).
 RN [114]
 RP STRUCTURE BY NMR.
 RX MEDLINE-97040521; PubMed-8885834;
 RA Moy F.J., Seddon A.P., Boehlen P., Powers R.;
 RT "High-resolution solution structure of basic fibroblast growth factor
 RT determined by multidimensional heteronuclear magnetic resonance
 RT spectroscopy.";
 RL Biochemistry 35:13552-13561(1996).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
 CC AFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC -----
 DR EMBL: M17599; AAA52534.1; ALT_INIT.
 DR EMBL: X04431; CAZ28027.1; -
 DR EMBL: X04432; CAZ28028.1; -
 DR EMBL: X04433; CAZ28029.1; -
 DR EMBL: M27968; AAA52448.1; -
 DR EMBL: J04513; AAA52533.1; ALT_INIT.
 DR PIR: A25824; A25824.
 DR PIR: A26642; A26642.
 DR PIR: B24243; B24243.
 DR PIR: B24301; B24301.
 DR PIR: B32878; B32878.
 DR PIR: S00297; S00297.
 DR PDB: 2FCF; 15-APR-92.
 DR PDB: 4FGF; 15-JUL-93.
 DR PDB: 1FGA; 15-JUL-93.
 DR PDB: 1BFC; 03-APR-96.
 DR PDB: 1BFB; 03-APR-96.
 DR PDB: 1BFG; 31-JUN-94.
 DR PDB: 2BFH; 30-APR-94.
 DR PDB: 1BLA; 08-NOV-96.
 DR PDB: 1BLD; 08-NOV-96.
 DR MIM: 134920; -
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; ITL_HBGF.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; ITL_HBGF.
 DR PRODOM: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;
 KW 3D-structure.
 KM PROPEP 1 9
 FT CHAIN 10 155
 FT SITE 46 48
 FT SITE 88 90
 FT BINDING 27 31
 FT BINDING 116 119
 FT STRAND 30 34
 FT TURN 35 38
 FT STRAND 39 43
 FT TURN 45 46
 FT STRAND 49 52
 FT TURN 55 56
 FT HELIX 58 60
 FT STRAND 62 66
 FT TURN 69 70
 FT STRAND 71 76
 FT TURN 77 80
 FT STRAND 81 85
 FT TURN 87 88
 FT STRAND 91 94
 FT HELIX 99 101
 FT STRAND 103 107
 FT TURN 109 110
 FT STRAND 113 117
 FT TURN 121 122
 FT STRAND 124 124
 FT TURN 129 130
 FT STRAND 132 133
 FT TURN 136 138
 FT HELIX 141 142
 FT TURN 143 146
 FT HELIX 148 152
 SQ SEQUENCE 155; AA; 17254 MM; BE6CE13373007129 CRC64;

Query Match 73.9%; Score 826; DB 1; Length 155;
 Best Local Similarity 100.0%; Pred. No. 2e-56;
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 56 MAAGSITLPLALPEDGGGAPPGHFKDPKRLCYKNGGFLLHPDGRVDYREKSDPHI 115
 DB 1 MAAGSITLPLALPEDGGGAPPGHFKDPKRLCYKNGGFLLHPDGRVDYREKSDPHI 60
 OY 116 KLOLAERGVYSIKGVANRYLAKEDGRLLASKCVTDECFEFLRLSNNTYRSRY 175
 DB 61 KLOLAERGVYSIKGVANRYLAKEDGRLLASKCVTDECFEFLRLSNNTYRSRY 120
 OY 176 TSMVALKRTGYKLGSTGPGQKALFLPLMSAKS 210
 DB 121 TSMVALKRTGYKLGSTGPGQKALFLPLMSAKS 155

RESULT 2
 FGFL2_BOVIN STANDARD; PRT; 155 AA.
 AC P03969;
 DT 23-OCT-1986 (Rel. 02, Created)
 DT 23-OCT-1986 (Rel. 02, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin) [contains: Kidney-derived growth factor].
 GN FGFL2 OR FGFL2.
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Kumlantia; Pecora; Bovidae; Bovidae; Bovidae; NCBI_TaxID=9913;
 OX NCBI_TaxID=9913;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Herrild K.A., Gospodarowicz D., Fiddes J.C.;
 RT "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";
 RL Science 233:545-548(1986).
 RP SEQUENCE FROM N.A.
 RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
 RT "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";
 RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
 RN [1]
 RP SEQUENCE OF 10-155.
 RA MEDLINE-86016731; PubMed-3863109;
 RA Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.;
 RT "Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FGF.";
 RL Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).
 RN [4]
 RP SEQUENCE OF 1-9.
 RA MEDLINE-86295737; PubMed-3741423;
 RA Ueno N., Baird A., Esch F., Ling N., Guillemin R.;
 RT "Isolation of an amino terminal extended form of basic fibroblast growth factor.";
 RL Biochem. Biophys. Res. Commun. 138:580-588(1986).
 RN [15]
 RP SEQUENCE OF 25-41.
 RC TISSUE-Kidney;
 RA MEDLINE-86095426; PubMed-4081126;
 RA Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;
 RT "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor.";

RL Regul. Pept. 12:201-213(1985).
 RN [6]
 RP SEQUENCE OF 21-40.
 RC TISSUE-Kidney;
 RA MEDLINE-87119165; PubMed-3809608;
 RA Ueno N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R.;
 RT "Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic fibroblast growth factor.";
 RL Regul. Pept. 16:135-145(1986).
 RN [7]
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
 RA MEDLINE-91095983; PubMed-1702556;
 RA Zhu X., Komiyama H., Chirino A., Faham S., Fox G.M., Arakawa T., Hsu B.T., Rees D.C.;
 RT "Three-dimensional structures of acidic and basic fibroblast growth factors.";
 RL Science 251:90-93(1991).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AREG.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC EMBL: M13440; AAA0518.1;
 DR PIR: A24663; GBAAB.
 DR PIR: A24819; A24819.
 DR PIR: A32878; A32878.
 DR PDB: 1BAS; 31-OCT-93.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; ILL_HBGF.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; ILLHBGF.
 DR PRODOM: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;
 KM 3D-structure.
 FT PROPEP 1 9
 FT CHAIN 10 155
 FT CHAIN 25 155
 FT SITE 46 48
 FT SITE 86 90
 FT BINDING 27 31
 FT BINDING 116 119
 FT STRAND 30 34
 FT STRAND 35 38
 FT STRAND 39 43
 FT TURN 45 46
 FT TURN 49 52
 FT TURN 55 56
 FT TURN 58 60
 FT STRAND 62 68
 FT TURN 69 70
 FT STRAND 71 76
 FT TURN 77 80
 FT STRAND 81 85
 FT TURN 87 88
 FT STRAND 91 94
 FT HELIX 99 101
 FT HELIX 103 107
 FT TURN 109 110
 HEPARIN-BINDING GROWTH FACTOR 2.
 KIDNEY-DERIVED GROWTH FACTOR.
 CELL ATTACHMENT SITE (POTENTIAL).
 CELL ATTACHMENT SITE (POTENTIAL).
 HEPARIN (POTENTIAL).
 HEPARIN (POTENTIAL).

FT STRAND 113 117
 FT TURN 121 122
 FT STRAND 124 124
 FT STRAND 127 127
 FT TURN 129 130
 FT STRAND 133 133
 FT TURN 136 138
 FT HELIX 141 142
 FT TURN 144 146
 FT STRAND 148 151
 SO SEQUENCE 155 AA; 17250 MW; BE6CE70FA6107129 CRC64;

Query Match 73.1%; Score 817; DB 1; Length 155;
 Best Local Similarity 98.7%; Pred. No. 9.8e-56;
 Matches 15; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 56 MAAGSITTLPLALPDGSGGAPPGHFKDPKRLYCKNGFFLRIRHPDGVGVREKSDPHI 115
 DB 1 MAAGSITTLPLALPDGSGGAPPGHFKDPKRLYCKNGFFLRIRHPDGVGVREKSDPHI 60

QY 116 KLOQAEERGVSVIKGCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 175
 DB 61 KLOQAEERGVSVIKGCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120

QY 176 TSWYVALKRTGYKLGSKRTGPGOKAILFLPMSAKS 210
 DB 121 SSWYVALKRTGYKLGSKRTGPGOKAILFLPMSAKS 155

RESULT 3
 FG2_SHEEP STANDARD; PRT; 155 AA.
 ID FG2_SHEEP STANDARD; PRT; 155 AA.

DT 01-FEB-1991 (Rel. 17, Created)
 DT 01-FEB-1996 (Rel. 33, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).

OS Ovis aries (Sheep).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Caprinae; Ovis.
 NCBI_TaxID=9940;

RP SEQUENCE FROM N.A.
 RA Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
 RN Submitted (SEP-1994) to the EMBL/GenBank/DBJ databases.

RP MEDLINE-88055577; PubMed-3678486;
 RA Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
 RA Rudilla M.R., Burgess A.W.;

RT Primary structure of ovine pituitary basic fibroblast growth factor.
 RL FEBS Lett. 224:128-132(1987).

CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- SUBUNIT: MONOMER.

CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
 ANGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

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 or send an email to license@isb-sib.ch).

CC EMBL: L36136; AAA31519.1; -
 DR PTR; S00185; S00185.
 DR HSSP; P09038; IBFF.
 DR InterPro; IPR002209; HBGF_FGF.
 DR InterPro; IPR003348; IL1_HBGF.
 DR Pfam; PF00167; FGF_1.
 DR PRINTS; PR00262; ILHBGF.
 DR ProDom; PD000831; HBGF_FGF; 1.
 DR SMART; SM00442; FGF_1.
 DR PROSITE; PS00247; HBGF_FGF; 1.
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT CHAIN 1 9
 FT PROPEP 1 9
 FT SITE 10 155
 FT SITE 45 48
 FT SITE 87 90
 FT BINDING 27 31
 FT BINDING 116 119
 SO SEQUENCE 155 AA; 17280 MW; B5F2364BA610606D CRC64;

Query Match 72.5%; Score 811; DB 1; Length 155;
 Best Local Similarity 98.1%; Pred. No. 2.8e-55;
 Matches 152; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 56 MAAGSITTLPLALPDGSGGAPPGHFKDPKRLYCKNGFFLRIRHPDGVGVREKSDPHI 115
 DB 1 MAAGSITTLPLALPDGSGGAPPGHFKDPKRLYCKNGFFLRIRHPDGVGVREKSDPHI 60

QY 116 KLOQAEERGVSVIKGCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 175
 DB 61 KLOQAEERGVSVIKGCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120

QY 176 TSWYVALKRTGYKLGSKRTGPGOKAILFLPMSAKS 210
 DB 121 SSWYVALKRTGYKLGSKRTGPGOKAILFLPMSAKS 155

RESULT 4
 FG2_RAT STANDARD; PRT; 154 AA.
 ID FG2_RAT STANDARD; PRT; 154 AA.

DT 01-JAN-1990 (Rel. 13, Created)
 DT 01-JAN-1990 (Rel. 13, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).

OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 NCBI_TaxID=10116;

RP SEQUENCE FROM N.A.
 RA STRAIN-SPRAGUE-DAWLEY; TISSUE-Ovary;
 RN MEDLINE-89061721; PubMed-3196337;

RA Shimazaki S., Emoto N., Koba A., Mercado M., Shibata F.,
 RA Cooksey K., Baid A., Ling N.;

RT Complementary DNA cloning and sequencing of rat ovarian basic
 fibroblast growth factor and tissue distribution study of its mRNA.
 RL Biochem. Biophys. Res. Commun. 157:256-263(1988).

RP SEQUENCE FROM N.A.

RC TISSUE-Brain;

RC MEDLINE-88262516; PubMed-3387229;

RA Kurokawa T., Seno M., Igarashi K.;

RT Nucleotide sequence of rat basic fibroblast growth factor cDNA.
 RL Nucleic Acids Res. 16:5201-5201(1988).

RP SEQUENCE OF 1-28 FROM N.A.

RC STRAIN-SPRAGUE-DAWLEY; TISSUE-Testis;

RC MEDLINE-97200905; PubMed-9048734;
 RA Pasumarthi K.B.S., Jin Y., Cattini P.A.;

RT Cloning of the rat fibroblast growth factor-2 promoter region and
 its response to mitogenic stimuli in glioma C6 cells.*;
 J. Neurochem. 68:898-908(1997).
 [14]
 RP SEQUENCE OF 35-154 FROM N.A.
 RX STRAIN-SPRAGUE-DAWLEY; TISSUE=Brain;
 RC MEDLINE=92329546; PubMed=1378302;
 RA El-Husseini A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
 RT PCR detection of the rat brain basic fibroblast growth factor (bFGF)
 mRNA containing a unique 3' untranslated region.*;
 RL Biochem. Biophys. Acta 1131:314-316(1992).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
 ANGIF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC -----
 DR EMBL: M22427; AAA41210.1; -
 DR EMBL: X07285; CAA30265.1; -
 DR EMBL: U78079; AAC53225.1; -
 DR EMBL: X61697; CAA43863.1; -
 DR PIR: S00876; S00876.
 DR PIR: A31674; A31674.
 DR HSSP: P09038; 1BFF.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; IL1HBGF.
 DR ProDom: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT PROPEP 1 9
 FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
 FT BINDING 26 30 HEPARIN (POTENTIAL).
 FT BINDING 115 118 HEPARIN (POTENTIAL).
 SQ SEQUENCE 154 AA; 17139 MW; 1A0F14FF423D8403 CRC64;

Query Match 71.4%; Score 798.5; DB 1; Length 154;
 Best Local Similarity 96.8%; Pred. No. 2,5e-54;
 Matches 150; Conservative 4; Mismatches 0; Indels 1; Gaps 1;

QY 56 MAAGSITTLPALPEDGSGAAPPFGHFRDPKRLKCKNGFFLRIHPDGRVDSVREKSPDH 115
 DB 1 MAAGSITSLPALPEDDG-GAAPPFGHFRDPKRLKCKNGFFLRIHPDGRVDSVREKSPDH 59
 QY 116 KLDQAERGVVSTIKGCANRYLAMKEDGRLLASCVTDCEFFERLESNNYNTYRSRKY 175
 DB 60 KLDQAERGVVSTIKGCANRYLAMKEDGRLLASCVTDCEFFERLESNNYNTYRSRKY 119
 QY 176 TSWYVALKRTGYKLGSKTGPCKAIIFLPMSAKS 210
 DB 120 TSWYVALKRTGYKLGSKTGPCKAIIFLPMSAKS 154

RESULT 5
 FGF2_MOUSE
 ID FGF2_MOUSE STANDARD; PRT; 154 AA.
 AC P15655;
 DT 01-APR-1990 (Rel. 14, Created)

DT 01-APR-1990 (Rel. 14, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
 growth factor) (BFGF) (Prostatopin).
 DE GNF 2 OR FGF-2.
 OS Mus musculus (Mouse).
 CC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OX NCBI_Taxid=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=90201563; PubMed=2218343;
 RA Hebert J.M., Basillio C., Goldfarb M., Haub O., Martin G.R.;
 RT Isolation of cDNAs encoding four mouse FGF family members and
 characterization of their expression patterns during embryogenesis.*;
 RL Dev. Biol. 138:454-463(1990).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC STRAIN=C57BL/6J, A/J, AND NOD/LtJ; TISSUE=Spleen;
 RA Ma R.Z., Teuscher C.;
 RL Submitted (MAY-1998) to the EMBL/GenBank/DBJ databases.
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
 ANGIF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC -----
 DR EMBL: M30644; AAA37621.1; -
 DR EMBL: AF065903; AAC17503.1; -
 DR EMBL: AF065904; AAC17504.1; -
 DR EMBL: AF065905; AAC17505.1; -
 DR PIR: C37360; C37360.
 DR HSSP: P09038; 1BFF.
 DR MGD: MGI:95516; Fgf2.
 DR InterPro: IPR002209; HBGF_FGF.
 DR InterPro: IPR002348; IL1_HBGF.
 DR Pfam: PF00167; FGF_1.
 DR PRINTS: PR00262; IL1HBGF.
 DR ProDom: PD000831; HBGF_FGF_1.
 DR SMART: SM00442; FGF_1.
 DR PROSITE: PS00247; HBGF_FGF_1.
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 FT PROPEP 1 9
 FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
 FT BINDING 26 30 HEPARIN (POTENTIAL).
 FT BINDING 115 118 HEPARIN (POTENTIAL).
 SQ SEQUENCE 154 AA; 17153 MW; 689F677416274388 CRC64;

Query Match 70.1%; Score 783.5; DB 1; Length 154;
 Best Local Similarity 94.8%; Pred. No. 3.4e-53;
 Matches 147; Conservative 5; Mismatches 2; Indels 1; Gaps 1;

QY 56 MAAGSITTLPALPEDGSGAAPPFGHFRDPKRLKCKNGFFLRIHPDGRVDSVREKSPDH 115
 DB 1 MAAGSITSLPALPEDGGA-AAPPFGHFRDPKRLKCKNGFFLRIHPDGRVDSVREKSPDH 59
 QY 116 KLDQAERGVVSTIKGCANRYLAMKEDGRLLASCVTDCEFFERLESNNYNTYRSRKY 175
 DB 60 KLDQAERGVVSTIKGCANRYLAMKEDGRLLASCVTDCEFFERLESNNYNTYRSRKY 119
 QY 176 TSWYVALKRTGYKLGSKTGPCKAIIFLPMSAKS 210

DB 120 SSMYVALKRTGQYKLGSKTGPCKALFLPMSAKS 154

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RESULT 6
ID FGF2_MONDO STANDARD: PRT: 156 AA.
AC P48798;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
growth factor) (BFGF) (Prostatotropin).
GN FGF2.
OS Monodelphis domestica (Short-tailed grey opossum).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
OX NCBI_TaxID=13616;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-EYE;
RX MEDLINE=94296558; PubMed=8024698;
RA Kusewitt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;
RT "Characterization of cDNA encoding basic fibroblast growth factor of
the marsupial Monodelphis domestica.";
RL DNA Cell Biol. 13:549-554(1994).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGP.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC CC
DR EMBL: Z15154; CAA78854.1; ALT_INIT.
DR HSSP: P09038; IBPF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF_1.
DR SMART: PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
DR PROSEP 1
FT CHAIN 1 9 BY SIMILARITY.
FT BINDING 10 156 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 28 32 HEPARIN (POTENTIAL).
FT BINDING 117 120 HEPARIN (POTENTIAL).
SQ SEQUENCE 156 AA; 17303 MW; 7E655FCC49B1209 CRC64;

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Query Match 68.0%; Score 760.5; DB 1; Length 156;
 Best Local Similarity 92.9%; Pred. No. 1.9e-51;
 Matches 145; Conservative 5; Mismatches 5; Indels 1; Gaps 1;

DB 56 MAAGSTTLPALPBD-GGSNAFPFGHFKDKPKRLKCKNGGFRLRHPGGRDVGVEKSDPH 114
 1 MAAGSTTLPALPBDGGGAGPPGPHFKDKPKRLKCKNGGFRLRHPGGRDVGVEKSDPH 60
 DB 115 IKLOLAERGVSVIKGVCANRYLAKMKEDGRLLASCKVDECFEPERLESNNYTRYSRK 174
 61 IKLOLAERGVSVIKGVCANRYLAKMKEDGRLLASCKVDECFEPERLESNNYTRYSRK 120
 DB 175 YTSWYVALKRTGQYKLGSKTGPCKALFLPMSAKS 210

DB 121 YSMYVALKRTGQYKLGSKTGPCKALFLPMSAKS 156

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RESULT 7
ID FGF2_CHICK STANDARD: PRT: 158 AA.
AC P48800;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
growth factor) (BFGF).
GN FGF2 OR FGF-2.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RC MEDLINE=93246053; PubMed=7683281;
RA Borja A.Z., Zeller R., Meijers C.;
RT "Expression of alternatively spliced bFGF first coding exons and
RT antisense mRNAs during chicken embryogenesis.";
RL Dev. Biol. 157:110-118(1993).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGP.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC CC
DR EMBL: M95707; AAA48617.1; -
DR HSSP: P09038; IBPF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF_1.
DR SMART: PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
DR PROSEP 1
FT CHAIN 1 12 BY SIMILARITY.
FT BINDING 13 158 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 30 34 HEPARIN (POTENTIAL).
FT BINDING 119 122 HEPARIN (POTENTIAL).
SQ SEQUENCE 158 AA; 17374 MW; 7B69B684C17F1016 CRC64;

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Query Match 67.9%; Score 759; DB 1; Length 158;
 Best Local Similarity 92.2%; Pred. No. 2.6e-51;
 Matches 142; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

DB 57 AAGSTTLPALPBDGGGAGPPGPHFKDKPKRLKCKNGGFRLRHPGGRDVGVEKSDPH 116
 5 AAGSTTLPALPBDGGGAGPPGPHFKDKPKRLKCKNGGFRLRHPGGRDVGVEKSDPH 64
 DB 117 LOLOAERGVSVIKGVCANRYLAKMKEDGRLLASCKVDECFEPERLESNNYTRYSRK 176
 65 LOLOAERGVSVIKGVCANRYLAKMKEDGRLLASCKVDECFEPERLESNNYTRYSRK 124
 DB 177 YTSWYVALKRTGQYKLGSKTGPCKALFLPMSAKS 210

DB 125 DMVALAKTGOIKFPGKTPGOKALFLPMASAKS 158

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RESULT 8
FGF2_RABIT STANDARD: PRT: 137 AA.
ID FGF2_RABIT
AC P48799;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 (HBGF-2) (Basic fibroblast growth
DE factor) (BGF2) (Prostatropin) (Fragment).
GN FGF2.
OS Oryctolagus cuniculus (Rabbit).
OC Eukaryota; Metazoa; Chordata; Cranialata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
OX NCBI_TaxID=9986;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=NEW ZEALAND WHITE; TISSUE=Smooth muscle;
RX MEDLINE=9343209; PubMed=8342599;
RA Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liu G.;
RT "Elevated expression of basic fibroblast growth factor in an
RT immortalized rabbit smooth muscle cell line.";
RL Am. J. Pathol. 143:518-527(1993).
CC - FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC - SUBUNIT: MONOMER.
CC - MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
DR EMBL: U12034; AAA31248.1; -
DR HSSP: P09038; 1BFF.
DR InterPro: IPR002209; HBGF_FGF.
DR Pfam: PF00167; FGF_1.
DR ProDom: PD000831; HBGF_FGF_1.
DR SMART: SM00442; FGF_1; HBGF_FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT BINDING 18 22 HEPARIN (POTENTIAL).
FT BINDING 107 110 HEPARIN (POTENTIAL).
FT NON_TER 137 137
SQ SEQUENCE 137 AA; 15418 MW; 0D9ED457B88E8C51 CRC64;
Query Match 66.0%; Score 738; DB 1; Length 137;
Best Local Similarity 99.3%; Pred. No. 8.7e-50;
Matches 136; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

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RESULT 9
FGF2_XENLA STANDARD: PRT: 155 AA.
ID FGF2_XENLA
AC P12226;
DT 01-OCT-1989 (Rel. 12, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BGF2).
GN FGF2 OR FGF-2.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Cranialata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipridae; Pipidae;
OX NCBI_TaxID=8355;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=89058621; PubMed=3194757;
RA Kimmelman D., Abraham J., Haapanta T., Palist T., Kirschner M.;
RT "The presence of fibroblast growth factor in the frog egg: its role
RT as a natural mesoderm inducer.";
RL Science 242:1053-1056(1988).
RN [2]
RP SEQUENCE OF 95-155 FROM N.A.
RX MEDLINE=88052890; PubMed=3479265;
RA Kimmelman D., Kirschner M.;
RT "Synergistic induction of mesoderm by FGF and TGF-beta and the
RT identification of an mRNA coding for FGF in the early Xenopus
RT embryo.";
RL Cell 51:869-877(1987).
CC - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: M18067; AAA49726.1; -
DR PIR: A29618; A29618.
DR PIR: A40117; A40117.
DR HSSP: P09038; 1BFF.
DR InterPro: IPR002209; HBGF_FGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; ILIHBGF.
DR ProDom: PD000831; HBGF_FGF_1.
DR SMART: SM00442; FGF_1; HBGF_FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 155
FT BINDING 27 31 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 116 119 HEPARIN (POTENTIAL).
FT CONFLICT 111 111 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17241 MW; 036735C8063142FD CRC64;
Query Match 61.4%; Score 687; DB 1; Length 155;
Best Local Similarity 83.9%; Pred. No. 7.5e-46;
Matches 130; Conservative 9; Mismatches 16; Indels 0; Gaps 0;

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OY 176 TSWYALKRTGQYKSGKTPGOKAILFLPMSAKS 210
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Db 121 SSMYVALKRTGQYKSGKSTGPGOKAILFLPMSAKS 155

RESULT 10
FGFI_MESAU
ID FGFI_MESAU STANDARD; PRT; 155 AA.
AC P34004;
DT 01-FEB-1994 (Rel. 28, Created)
DT 01-FEB-1994 (Rel. 28, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
  growth factor) (AFGF).
GN FGFI OR FGF-1.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Mesocricetus.
OX NCBI_TaxID=10036;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=90270291; PubMed=1693366;
RA Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E.;
RT "Characterization of the hamster DDT-1 cell aFGF/HBGF-1 gene and cDNA
  and its modulation by steroids.";
RL J. Cell. Biochem. 43:17-26(1990).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
  IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
  VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
  CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
  THAN DOES BEGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
DR PIR; A60721; A60721.
DR HSSP; P05230; 1RM1.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
KM PROPEP 1 15
FT CHAIN 16 155
FT BINDING 24 28
FT BINDING 113 116
SQ SEQUENCE 155 AA; 17403 MW; 41E5EC760E412CC5 CRC64;

Query Match 37.4%; Score 418.5; DB 1; Length 155;
Best Local Similarity 54.8%; Pred. No. 1,9e-25;
Matches 86; Conservative 16; Mismatches 50; Indels 5; Gaps 2;

OY 56 MAAGSITTLPALPEDGSGAPPGHFDPRKLYCKNGGFLRLHPDGRVGVREKSPHI 115
    :|||||
Db 1 MAGESEITTFALFERNF---LPGONKPKKLYLCSNGHRLILPDSTVGTGDRSQHI 57

OY 116 KIQLOAEKRVVSIKGYCANRYIAMKEDGRILASKCYTDCFFEEERLNNYTSRKRY 175
    :|||||
Db 58 QLOLSAESAGEVYIKGTETQYIAMDGLIYSGQTPNEBCLFLERLENNHYTYSKSH 117

OY 176 T--SMYVALKRTGQYKSGKTPGOKAILFLPMSAKS 210
    :|||||
Db 118 AEKMFVGLKKNKSGCKRGRTHYGOXKAILFLPLPVSS 154

RESULT 11
FGFI_CHICK
ID FGFI_CHICK STANDARD; PRT; 155 AA.
AC P19586;

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DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
  growth factor) (AFGF) (Alpha-endothelial cell growth factor).
GN FGFI OR FGF-1;
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=91347925; PubMed=1715259;
RA Schumacher H., Risau W.;
RT "Differentiating and mature neurons express the acidic fibroblast
  growth factor gene during chick neural development.";
RL Development 111:1143-1154(1991).
RN [2]
RP SEQUENCE FROM N.A.
RA Martin G.R., Han J.K.;
RL Submitted (JUL-1995) to the EMBL/Genbank/DBJ databases.
RN [3]
RX MEDLINE=88296438; PubMed=3402441;
RA Risau W., Gutschik-Sova P., Boehlen P.;
RT "Endothelial cell growth factors in embryonic and adult chick brain
  are related to human acidic fibroblast growth factor.";
RL EMBO J. 7:959-962(1988).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
  IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
  VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
  CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
  THAN DOES BEGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC EMBL; S63263; AAB19629.1; -
CC EMBL; U31863; AAA80310.1; -
CC EMBL; S63261; AAD13942.1; -
DR PIR; S02639; S02639.
DR HSSP; P05230; 12AXM.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
KM PROPEP 1 15
FT CHAIN 16 155
FT CHAIN 22 155
FT CHAIN 24 28
FT BINDING 113 116
FT BINDING 113 116
SQ SEQUENCE 155 AA; 17322 MW; 8EDB70545E2B4365 CRC64;

Query Match 36.7%; Score 410.5; DB 1; Length 155;
Best Local Similarity 54.9%; Pred. No. 7.7e-25;
Matches 84; Conservative 20; Mismatches 44; Indels 5; Gaps 2;

OY 56 MAAGSITTLPALPEDGSGAPPGHFDPRKLYCKNGGFLRLHPDGRVGVREKSPHI 115
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RX MEDLINE-98387896; PubMed-9719643;
RA Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.;
RT "Solution structure of acidic fibroblast growth factor bound to 1,3,
RT 6-naphthalenesulfonate: a minimal model for the anti-tumoral
RT action of suramin and suradistat."
RL J. Mol. Biol. 281:899-915(1998).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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DR EMBL: M13361; AAA79245.1; -
DR EMBL: X51943; CA336206.1; -
DR EMBL: M30492; AAA52446.1; -
DR EMBL: M30490; AAA52446.1; JOINED.
DR EMBL: M30491; AAA52446.1; JOINED.
DR EMBL: M60515; AAA51672.1; -
DR EMBL: M60516; AAA51673.1; -
DR EMBL: M23087; AAA52638.1; -
DR EMBL: M23086; AAA52638.1; JOINED.
DR EMBL: S67291; AAB29057.2; -
DR EMBL: X65778; CA46661.1; -
DR PIR: A23553; A23553.
DR PIR: A24243; A24243.
DR PIR: A24301; A24301.
DR PIR: A24662; A24662.
DR PIR: A24820; A24820.
DR PIR: A26386; A26386.
DR PIR: A33665; A33665.
DR PIR: S18217; S18217.
DR PDB: 2ARG; 15-OCT-95.
DR PDB: 1AXM; 22-APR-98.
DR PDB: 2AXM; 22-APR-98.
DR PDB: 1RML; 11-NOV-98.
DR PDB: 131220; -
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;
KW 3d-structure.
FT PROPEP 1 15
FT CHAIN 16 155
FT MOD_RES 2 2
FT BINDING 24 28
FT BINDING 113 116
FT BINDING 155 AA; 17460 MW; F5868BFB09F1580 CRC64;
SO SEQUENCE

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Query Match 36.6%; Score 409.5; DB 1; Length 155;
 Best Local Similarity 54.1%; Pred. No. 9.2e-25;
 Matches 85; Conservative 16; Mismatches 51; Indels 5; Gaps 2;

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OY 56 MAAGSTTLPALPEDEGSGAFPGRHFKDPRKLYCKNGGFEIRLHPDGRVGVREKSDPHI 115
DB 1 MARGETITFALTEKFN---LPPGNTKKPKRLATCSNGHRLRLTPGTYDGTDRSDQHI 57
OY 116 KQLQALENGGVYSIKGVCANRYLAKMEDGRLASKVCYDCEFFERLESNNYTYSRKY 175

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DB 58 QQLTAESEGEYIYISTEGOTLADTDLGYSGTPECEFLERLENNHYTSKHH 117
OY 176 T--SWYALKRTGYKLSKTPGGOKAILFLPMSAKS 210
DB 118 AEKNMFVGLKKNKSGCKRGRPRHYGOKAILFLPLPVS 154
RESULT 13
ID FGF1_MOUSE STANDARD; PRT; 155 AA.
AC P10935;
DT 01-JUL-1989 (Rel. 11, Created)
DT 01-JUL-1989 (Rel. 11, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
DE growth factor) (AFGF).
GN FGF1 OR FGF-1 OR FGFA.
OS Mus musculus (Mouse), and
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090, 10116;
RN [1]
RP SEQUENCE FROM N.A.
RC SPECIES-Rat;
RX MEDLINE-89240051; PubMed-2470029;
RA Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
RT "The nucleotide sequence of rat heparin binding growth factor 1
RT (HBGF-1).";
RL Nucleic Acids Res. 17:2867-2867(1989).
RN [2]
RP SEQUENCE FROM N.A.
RC SPECIES-Mouse;
RX MEDLINE-90201563; PubMed-2318343;
RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
RT "Isolation of cDNAs encoding four mouse fgf family members and
RT characterization of their expression patterns during embryogenesis.";
RL Dev. Biol. 138:454-463(1990).
RN [3]
RP SEQUENCE FROM N.A.
RC SPECIES-Mouse;
RX MEDLINE-97128312; PubMed-8972905;
RA Madai F., Hackshaw K.V., Chiu I.M.;
RT "Cloning and characterization of the mouse fgf-1 gene.";
RL Gene 179:231-236(1996).
RN [4]
RP SEQUENCE FROM N.A.
RC SPECIES-Mouse; STRAIN-BALB/C;
RX MEDLINE-97094746; PubMed-8939980;
RA Alam K.Y., Frostholm A., Hackshaw K.V., Evans J.E., Rottler A.,
RA Chiu I.M.;
RT "Characterization of the 1b promoter of fibroblast growth factor 1
RT and its expression in the adult and developing mouse brain.";
RL J. Biol. Chem. 271:30263-30271(1996).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
DR EMBL: X14232; CA32448.1; -
DR EMBL: M30641; AAA37618.1; -
DR EMBL: U36459; AAC52969.1; -

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RT *Nucleotide sequence of bovine acidic fibroblast growth factor cDNA.*;
RL Nucleic Acids Res. 16:10913-10913(1988).
RN [2]
RP SEQUENCE FROM N.A.
RC Tissue-Retina;
RX MEDLINE-89078619; PubMed-2849564;
RA Alterio J., Halley C., Brion C., Soussi T., Courtols Y., Laurent M.;
RT *Characterization of a bovine acidic FGF cDNA clone and its
  expression in brain and retina.*;
RL FEBS Lett. 242:41-46(1988).
RN [3]
RP SEQUENCE OF 2-155.
RX MEDLINE-87016918; PubMed-3532107;
RA Burgess W.H., Mehlmann T., Marshak D.R., Fraser B.A., Maciag T.;
RT *Structural evidence that endothelial cell growth factor beta is the
  precursor of both endothelial cell growth factor alpha and acidic
  fibroblast growth factor.*;
RL Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
RN [4]
RP SEQUENCE OF 2-155.
RX MEDLINE-87026586; PubMed-3768327;
RA Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D.,
RT *Complete primary structure of prostatiotin, a prostate epithelial
  cell growth factor.*;
RL Biochemistry 25:4988-4993(1986).
RN [5]
RP SEQUENCE OF 16-155.
RX MEDLINE-86070224; PubMed-4071057;
RA Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,
RT *Brain-derived acidic fibroblast growth factor: complete amino acid
  sequence and homologies.*;
RL Science 230:1385-1388(1985).
RN [6]
RP SEQUENCE OF 16-44, AND COMPOSITION.
RX MEDLINE-86055750; PubMed-4065099;
RA Boehlen P., Esch F., Baird A., Gospodarowicz D.;
RT *Acidic fibroblast growth factor (FGF) from bovine brain:
  amino-terminal sequence and comparison with basic FGF.*;
RL EMO J. 4:1951-1956(1985).
RN [7]
RP SEQUENCE OF 16-56 FROM N.A.
RX MEDLINE-86261806; PubMed-2425435;
RA Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J.,
RT *Nucleotide sequence of a bovine clone encoding the angiogenic
  protein, basic fibroblast growth factor.*;
RL Science 233:545-548(1986).
RN [8]
RP SEQUENCE OF 16-45.
RX MEDLINE-89231704; PubMed-2714282;
RA Oulinkier W., Maasberg M., Bernotat-Danilewski S., Iuette N.,
RT *Isolation of heparin-binding growth factors from bovine, porcine and
  canine hearts.*;
RL Eur. J. Biochem. 181:67-73(1989).
RN [9]
RP SEQUENCE OF 1-18 FROM N.A.
RX Philippe J.M., Renaud F., Desset S., Laurent M.;
RT Submitted (JUL-1992) to the EMBL/GenBank/DBJ databases.
RN [10]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RX MEDLINE-91095983; PubMed-1702556;
RA Zhu X., Komlya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
RT *Three-dimensional structures of acidic and basic fibroblast growth
  factors.*;
RL Science 251:90-93(1991).
RN [11]
RP FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
  IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
  VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
  CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC CC
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
  THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC CC
DR EMBL: M13439; AAA30516.1; -
DR EMBL: X13221; CAAB3610.1; -
DR EMBL: X14032; CAAB32192.1; -
DR EMBL: M35608; AAA30517.1; -
DR EMBL: X66446; CAA47063.1; -
DR EMBL: M97660; AAA30563.1; -
DR EMBL: M97661; AAA30564.1; -
DR PIR: A01385; GKBOA.
DR PIR: A25043; A25043.
DR PIR: B25043; B25043.
DR PIR: C25043; C25043.
DR PIR: A24477; A24477.
DR PIR: B24663; B24663.
DR PIR: S02102; S02102.
DR PDB: 1BAR; 3I-OCT-93.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS: PR00262; ILHBGF.
DR PRODOM: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;
  3D-structure.
KM 1
FT PROPEP 15
FT CHAIN 2
FT CHAIN 155
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FT MOD_RES 155
FT BINDING 24
FT BINDING 28
FT TURN 27
FT TURN 31
FT STRAND 32
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FT HELIX 57
FT STRAND 59
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FT STRAND 71
FT STRAND 73
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FT STRAND 111
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FT STRAND 123
FT STRAND 126
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FT STRAND 134
FT HELIX 135
FT TURN 140
FT TURN 141
FT TURN 144
FT STRAND 145
FT STRAND 147
FT STRAND 150

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OM protein - protein search, using sw model

Run on: June 2, 2002, 17:54:02 ; Search time 35.96 Seconds

(without alignments)
561.145 Million cell updates/sec

Title: US-09-642-277a-1

Sequence: 1 MCDRGRGRALPGGRGGRGGR.....GSRKPGGRALFLPMASAKS 210

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database:

1: PIR.71:*
2: PIR2:*
3: PIR3:*
4: PIR4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1118	100.0	210	2 A32398	basic fibroblast g
2	823	73.6	157	1 GK80B	basic fibroblast g
3	802.5	71.8	189	2 A48834	basic fibroblast g
4	798.5	71.4	154	2 A31674	basic fibroblast g
5	783.5	70.1	154	2 C37360	basic fibroblast g
6	770	68.9	146	1 S00185	basic fibroblast g
7	767.5	68.6	164	2 S31622	basic fibroblast g
8	738	66.0	137	2 I46711	basic fibroblast g
9	687	61.4	155	1 A40117	basic fibroblast g
10	531.5	47.5	125	2 A32484	basic fibroblast g
11	418.5	37.4	155	1 A60721	acidic fibroblast
12	410.5	36.7	155	2 A60130	acidic fibroblast
13	409.5	36.6	155	1 A33665	acidic fibroblast
14	404.5	36.2	155	2 S04147	acidic fibroblast
15	404.5	36.2	155	2 D37360	acidic fibroblast
16	403.5	36.1	152	2 JH0476	acidic fibroblast
17	395.5	35.4	155	2 JH0055	acidic fibroblast
18	393.5	35.2	155	1 GK80A	acidic fibroblast
19	378.5	34.9	194	2 J27110	acidic fibroblast
20	272.5	24.4	206	1 TVHHS	fibroblast growth
21	271	24.2	256	2 JH4287	fibroblast growth
22	266.5	23.8	206	2 JH4288	fibroblast growth
23	265.5	23.7	206	2 S68144	fibroblast growth
24	263	23.5	208	2 S14192	fibroblast growth
25	262	23.4	264	2 A36207	fibroblast growth
26	261	23.3	208	2 S20102	fibroblast growth
27	259.5	23.2	202	1 TVMSHS	fibroblast growth
28	253	22.6	267	1 TVHDFS	fibroblast growth
29	251	22.5	220	2 TV0588	fibroblast growth

30	243.5	21.8	239	1 S04742	fibroblast growth
31	242.5	21.7	245	1 TVMSR2	transforming prote
32	241	21.6	237	1 S39582	transforming prote
33	239	21.4	187	2 S23595	embryonic fibrobla
34	234.5	21.0	192	2 S54407	embryonic fibrobla
35	219	19.6	208	2 S66486	fibroblast growth
36	219	19.6	208	2 A48137	fibroblast growth
37	218.5	19.5	211	2 JH7353	fibroblast growth
38	210	18.8	208	2 JH7082	fibroblast growth
39	209.5	18.7	194	2 I48610	fibroblast somatot
40	207.5	18.6	194	1 A36301	keratinocyte growth
41	207.5	18.6	194	2 S26049	fibroblast growth
42	207.5	18.6	194	2 S49501	fibroblast growth
43	206.5	18.5	207	2 JH5940	keratinocyte growth
44	206.5	18.5	212	2 JH7511	fibroblast growth
45	205.5	18.4	207	2 JH5941	fibroblast growth

ALIGNMENTS

RESULT 1
A32398
basic fibroblast growth factor precursor, 22.5K form - human
N:Alternate names: bFGF, fibroblast growth factor 2; prostatic growth factor; prosta
N:Contains: basic fibroblast growth factor, 18K form
C:Species: Homo sapiens (man)
C>Date: 31-Jul-1989 #sequence_revision 31-Dec-1993 #text_change 21-Jul-2000
C:Accession: A32398; A61537; A26642; B32878; S00297; A54316; B54316; A33624; A25824;
R:Prats, H.; Kagnad, M.; Prats, A.C.; Klagsbrun, M.; Lellis, J.M.; Hanzun, P.; Cha
Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989
A:Title: High molecular mass forms of basic fibroblast growth factor are initiated
A:Reference number: A32398; MUID:89184522
A:Accession: A32398
A:Molecule type: mRNA
A:Residues: 1-210 <PRA>
A:Cross-references: GB:J04513; NID:q183083; PIDN:AAA52531.1; PID:q459811
R:Shibata, F.; Balid, A.; Florjencic, R.Z.
Growth Factors 4, 277-287, 1991
A:Title: Functional characterization of the human basic fibroblast growth factor ge
A:Reference number: A61537; MUID:92110035
A:Accession: A61537
A:Molecule type: DNA
A:Residues: 1-114 <SHI>
A:Note: authors translated the codon GGA for residue 47 as Ala
R:Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.
FEBS Lett. 213, 189-194, 1987
A:Title: Cloning and expression of cDNA encoding human basic fibroblast growth fact
A:Reference number: A26642; MUID:87162468
A:Accession: A26642
A:Molecule type: mRNA
A:Residues: 56-210 <KUR>
A:Cross-references: GB:M27968; NID:q182562; PIDN:AAA52448.1; PID:q182563
R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes, J.C.
Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986
A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organiz
A:Reference number: A90924; MUID:87217056
A:Accession: B32878
A:Molecule type: mRNA
A:Residues: 56-210 <ABR>
A:Note: the authors translated the codon GAA for residue 108 as Gly
R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, L
EMBO J. 5, 2523-2528, 1986
A:Title: Human basic fibroblast growth factor: nucleotide sequence and genomic organ
A:Accession: S00297; MUID:87053817
A:Status: not compared with conceptual translation
A:Molecule type: DNA
A:Residues: 1-155 <AB2>
A:Note: the authors translated the codon GAA for residue 108 as Gly
R:Shimoyama, Y.; Gotoh, M.; Ito, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.
Jpn. J. Cancer Res. 82, 1263-1270, 1991
A:Title: Characterization of high-molecular-mass forms of basic fibroblast growth fa

rctinogenesis.
 A:Reference number: A54316; MUID:92091228
 A:Accession: A54316
 A:Molecule type: protein
 A:Residues: 186-88, 'X', 90-91, 'X', 93-95 <SH3>
 A:Experimental source: C-1121 hepatocellular carcinoma cell line
 A:Note: sequence extracted from NCBI backbone (NCBIP:71595)
 A:Accession: B54316
 A:Molecule type: protein
 A:Residues: 19, 'X', 21-29 <SH2>
 A:Note: sequence extracted from NCBI backbone (NCBIP:71594)
 R:Rege, J.J.; Bradley, J.D.; Fryburg, K.; Fariss, J.; Cousins, L.C.; Barr, P.J.; Baird, J. Cell Biol. 109, 3105-3114, 1989
 A:Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylation
 A:Reference number: A33624; MUID:90078343
 A:Accession: A33624
 A>Status: preliminary
 A:Molecule type: protein
 A:Residues: 57-210 <FEI>
 R:Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.
 Biochem. Biophys. Res. Commun. 142, 702-709, 1987
 A:Title: Amino-terminal sequence of a large form of basic fibroblast growth factor isolet
 A:Reference number: A25824; MUID:8715686
 A:Accession: A25824
 A:Molecule type: protein
 A:Residues: 57-77 <STO>
 A:Experimental source: prostate
 R:Gimenez-Gallo, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
 Biochem. Biophys. Res. Commun. 135, 541-548, 1986
 A:Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal
 A:Reference number: A90122; MUID:86186784
 A:Accession: B24243
 A:Molecule type: protein
 A:Residues: 65-102, 'X', 104-105 <GIM>
 A:Experimental source: brain
 R:Gautschi, P.; Frazer-Schroder, M.; Bohlen, P.
 FEBS Lett. 204, 203-207, 1986
 A:Title: Partial molecular characterization of endothelial cell mitogens from human brain
 A:Reference number: A91364; MUID:86275260
 A:Accession: B24301
 A:Molecule type: protein
 A:Residues: 65-88, 'X', 90-98, 'X', 100 <GAM>
 R:Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.
 Biochem. Biophys. Res. Commun. 144, 543-550, 1987
 A:Title: A form of human basic fibroblast growth factor with an extended amino terminus
 A:Reference number: S42242; MUID:87213238
 A:Accession: S42242
 A>Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 54-210 <SOM>
 A:Cross-references: EMBL:M17599; NID:G183086; PIDN:AAA52534.1; PID:G183087
 R:Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobey, T.; Wetmore, D.
 Biochemistry 33, 10229-10246, 1994
 A:Title: Multivalent ligand-receptor binding interactions in the fibroblast growth factor
 A:Reference number: A55784; MUID:94347757
 A:Accession: B55784
 A:Molecule type: protein
 A:Residues: 54-71 <PAN>
 R:Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.
 Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992
 A:Title: Reverse transcription with nested polymerase chain reaction shows expression of
 A:Reference number: I52267; MUID:93038590
 A:Accession: I52267
 A>Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 95-182 <RES>
 A:Cross-references: GB:S47380; NID:G256535; PIDN:AD13853.1; PID:G4261553
 R:Patry, V.; Bangler, B.; Amalric, F.; Prome, J.C.; Prats, H.
 FEBS Lett. 349, 23-28, 1994
 A:Title: Purification and characterization of the 210-amino acid recombinant basic fibro
 A:Reference number: S46253; MUID:94320639

A:Accession: S46253
 A:Molecule type: protein
 A:Residues: 39-53;65-88 <PAR>
 A:Note: recombinant gene expressed in Escherichia coli
 C:Genetics:
 A:Gene: GDB:FGF2; FGFB
 A:Cross-references: GDB:119910; OMIM:134920
 A:Map position: 4q25-4q27
 A:Start codon: CUG
 C:Superfamily: fibroblast growth factor
 C:Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; m
 F:1-210/Product: basic fibroblast growth factor, 22.5k form status predicted <MA2>
 F:65-210/Product: basic fibroblast growth factor, 18k form status predicted <MA2>
 F:82-86/Region: heparin binding status predicted
 F:171-174/Region: heparin binding status predicted

 Query Match 100.0%; Score 118; DB 2; Length 210;
 Best Local Similarity 100.0%; Pred. No. 1,4e-77;
 Matches 210; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

 QY 1 MDRGRGALPGRLGGRGRAPRVRGGRGRCTAAPRAAPARGRPGAGTMAAGS 60
 DB 1 MDRGRGALPGRLGGRGRAPRVRGGRGRCTAAPRAAPARGRPGAGTMAAGS 60
 QY 61 ITTLPALPEDGSGAPFPGHFRDPKRLCKNGFFLRHPDGRVDGVERKSPHKLQ 120
 DB 61 ITTLPALPEDGSGAPFPGHFRDPKRLCKNGFFLRHPDGRVDGVERKSPHKLQ 120
 QY 121 AEGRGVSIKVCANRYLAMKEDRLASKCTDCFFERLESNNYTRSKRTSMYV 180
 DB 121 AEGRGVSIKVCANRYLAMKEDRLASKCTDCFFERLESNNYTRSKRTSMYV 180
 QY 181 ALKRTGYKLSKTPGQKAILFLPMSAKS 210
 DB 181 ALKRTGYKLSKTPGQKAILFLPMSAKS 210

 RESULT 2
 GKB08
 basic fibroblast growth factor precursor - bovine (fragment)
 N:Alternate names: bFGF; kidney-derived growth factor; prostatiopl
 C:Species: Bos primigenius taurus (cattle)
 C:Date: 13-Aug-1986 #sequence revision 02-Jun-1995 #text change 24-Nov-1999
 C:Accession: A24653; A32878; A33784; A61550; A61551; A60310; A61094; A01386; A60316;
 R:Abraham, J.A.; Merila, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjertild, K.A.;
 Science 233, 545-548, 1986
 A:Title: Nucleotide sequence of a bovine clone encoding the angiogenic protein, bas
 A:Reference number: A94290; MUID:86261806
 A:Accession: A24653
 A:Molecule type: mRNA
 A:Residues: 3-157 <ABR>
 A:Cross-references: GB:M13440; NID:G163049; PIDN:AAA30518.1; PID:G163050
 A:Experimental source: pituitary gland
 R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Merila, A.; Fiddes, J.C.
 Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986
 A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organiza
 A:Reference number: A90924; MUID:87217066
 A:Accession: A32878
 A:Molecule type: mRNA
 A:Residues: 3-157 <AB2>
 R:Miller, P.G.; Li, Y.S.; Hoffman, R.M.; Kohler, C.M.; Siegel, N.R.; Deuel, T.F.
 Biochem. Biophys. Res. Commun. 165, 1096-1103, 1989
 A:Title: A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: puri
 A:Reference number: A33784; MUID:90121211
 A:Accession: A33784
 A:Molecule type: protein
 A:Residues: 1-14 <MTL>
 A:Note: demonstration of a possible alternative initiator or splice junction
 R:Bertolini, J.; Hearn, M.T.W.
 Mol. Cell. Endocrinol. 51, 187-199, 1987
 A:Title: Isolation, characterization and tissue localisation of an N-terminal-trunca
 A:Reference number: A61550; MUID:87247652

A:Accession: A61550
 A:Molecule type: protein
 A:Residues: 16-35 <BER>
 R:Deno, N.; Baird, A.; Esch, F.; Ling, N.; Gullilemin, R.
 Mol. Cell. Endocrinol. 49, 189-194, 1987
 A:Title: Isolation and partial characterization of basic fibroblast growth factor from h
 A:Reference number: A61551; PMID:87162856
 A:Accession: A61551
 A:Molecule type: protein
 A:Residues: 27-35, 'X', 37-41 <UE3>
 A:Experimental source: testes
 A:Note: this form appears to be identical to the renal form
 R:Deno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.; Gullilemin, R.
 Regul. Pept. 16, 135-145, 1986
 A:Title: Purification and partial characterization of a mitogenic factor from bovine liv
 A:Reference number: A60310; PMID:87119165
 A:Accession: A60310
 A:Molecule type: protein
 A:Residues: 23-35, 'X', 37-42 <UEN>
 A:Experimental source: liver
 R:Deno, N.; Baird, A.; Esch, F.; Ling, N.; Gullilemin, R.
 Biochem. Biophys. Res. Commun. 138, 580-588, 1986
 A:Title: Isolation of an amino terminal extended form of basic fibroblast growth factor
 A:Reference number: A24819; PMID:86295737
 A:Contents: annotation
 A:Note: the amino end of this form was blocked; the peptide composition matched what was
 R:Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.; Bohlen, P.
 Endocrinology 118, 82-90, 1986
 A:Title: Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical
 A:Reference number: A61094; PMID:86081530
 A:Accession: A61094
 A:Molecule type: protein
 A:Residues: 12-25, 27-35, 'X', 37-40 <GOS>
 A:Experimental source: adrenal gland
 R:Esch, F.; Baird, A.; Ling, N.; Deno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodar
 Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985
 A:Title: Primary structure of bovine pituitary basic fibroblast growth factor (PGF) and
 A:Reference number: A01386; PMID:86016731
 A:Accession: A01386
 A:Molecule type: protein
 A:Residues: 12-157 <ESC>
 A:Experimental source: pituitary gland
 R:Baird, A.; Esch, F.; Bohlen, P.; Ling, N.; Gospodarowicz, D.
 Regul. Pept. 12, 201-213, 1985
 A:Title: Isolation and partial characterization of an endothelial cell growth factor fr
 A:Reference number: A60316; PMID:86095426
 A:Accession: A60316
 A:Molecule type: protein
 A:Residues: 27-35, 'X', 37-43 <BAI>
 A:Experimental source: kidney
 R:Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
 Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984
 A:Title: Isolation and partial molecular characterization of pituitary fibroblast growth
 A:Reference number: A24054; PMID:84298139
 A:Accession: A24054
 A:Molecule type: protein
 A:Residues: 12-26 <BOH>
 C:Comment: The acidic and basic fibroblast growth factors are the major endothelial-cell
 all types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating b
 C:Superfamily: fibroblast growth factor
 C:Keywords: alternative splicing; angiogenesis; blocked amino end; growth factor; hepari
 F:1-157/Product: basic fibroblast growth factor, uterine form #status predicted <MATI>
 F:4-157/Product: basic fibroblast growth factor, pituitary gamma form #status experiment
 F:12-157/Product: basic fibroblast growth factor, pituitary alpha form #status experiment
 F:16-157/Product: basic fibroblast growth factor, pituitary short form #status predicted
 F:23-157/Product: basic fibroblast growth factor, hepatic form #status experimental <MATI>
 F:29-33, 118-121/Region: heparin binding #status predicted
 F:4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma) (probably ac

Query Match

73.6%; Score 823; DB 1; Length 157;

Best Local Similarity 98.1%; Pred. No. 2, 1e-55;
 Matches 154; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
 QY 54 GTMAAGSITLPLALPEGGSGAPPPGHPKPKRLKCNKGFFLRIHPDGRVDGVRKSDP 113
 Db 1 GAMAAGSITLPLALPEGGSGAPPPGHPKPKRLKCNKGFFLRIHPDGRVDGVRKSDP 60
 QY 114 HIKLOAERGVYSIGVCANRYLAKKEDGRLLASCVTDECFERLESNNNTYRSR 173
 Db 61 HIKLOAERGVYSIGVCANRYLAKKEDGRLLASCVTDECFERLESNNNTYRSR 120
 QY 174 KYTSWYVALKRTGQYKLGSKTGPQKALILFLPMSAKS 210
 Db 121 KYTSWYVALKRTGQYKLGSKTGPQKALILFLPMSAKS 157
 RESULT 3
 A48834
 basic fibroblast growth factor - chicken
 C:Species: Gallus gallus (chicken)
 C:Date: 01-Dec-1993 #sequence, revision 18-Nov-1994 #text_change 16-Jul-1999
 C:Accession: A48834; S23636
 R:Borja, A.Z.; Weijers, C.; Zeller, R.
 Dev. Biol. 157, 110-118, 1993
 A:Title: Expression of alternatively spliced bFGF first coding exons and antisense
 A:Reference number: A48834; PMID:93246053
 A:Accession: A48834
 A:Status: preliminary
 A:Molecule type: nucleic acid
 A:Residues: 1-189 <BOR>
 A:Experimental source: embryo
 A:Note: sequence extracted from NCBI backbone (NCBIN:131000, NCBI:P.131001)
 R:Mitranl, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
 Development 109, 387-393, 1990
 A:Title: Fibroblast growth factor during mesoderm induction in the early chick embryo
 A:Reference number: S23636; PMID:90382254
 A:Accession: S23636
 A:Status: preliminary
 A:Molecule type: DNA
 A:Residues: 95-128 <MIT>
 A:Cross-references: EMBL:X56804; NID:962855; PIDD:CAA40139.1; PTD:962856
 C:Superfamily: fibroblast growth factor

Query Match 71.8%; Score 802.5; DB 2; Length 189;
 Best Local Similarity 84.0%; Pred. No. 8, 8e-54;
 Matches 157; Conservative 5; Mismatches 18; Indels 7; Gaps 2;

QY 31 GGRGRTAPRAAPAAAG--SRPGPAGTM-----AAGSITLPLALPEGGSGAPPPGHPKD 83
 Db 3 GGRGRTAPRAAPAAAGGPGRRRAAGAAAGSITLPLALPDGSGGAPPPGHPKD 62
 QY 84 PKRLKCNKGFFLRIHPDGRVDGVRKSDPHIKLOAERGVYSIGVCANRYLAKKED 143
 Db 63 PKRLKCNKGFFLRIHPDGRVDGVRKSDPHIKLOAERGVYSIGVCANRYLAKKED 122
 QY 144 GRLLASCVTDECFERLESNNNTYRSKRYTSWYVALKRTGQYKLGSKTGPQKALIF 203
 Db 123 GRLLASCVTDECFERLESNNNTYRSKRYSDWYVALKRTGQYKLGSKTGPQKALIF 182
 QY 204 LPMASAKS 210
 Db 183 LPMASAKS 189
 RESULT 4
 A31674
 basic fibroblast growth factor precursor - rat
 N:Alternate names: bFGF
 C:Species: Rattus norvegicus (Norway rat)
 C:Date: 21-May-1990 #sequence, revision 21-May-1990 #text_change 16-Jul-1999
 C:Accession: A31674; S00876; S24309
 R:Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird,

Biochem. Biophys. Res. Commun. 157, 256-263, 1988
 A:Title: Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth
 A:Reference number: A31674; MID:89061721
 A:Accession: A31674
 A:Molecule type: mRNA
 A:Residues: 1-154 <SH1>
 A:Cross-references: GB:M22427; MID:g204285; PIDN:AAA41210.1; PID:g204286
 R:Kurokawa, T.; Seno, M.; Igarashi, K.
 Nucleic Acids Res. 16, 5201, 1988
 A:Title: Nucleotide sequence of rat basic fibroblast growth factor cDNA.
 A:Reference number: S00876; MID:88262516
 A:Accession: S00876
 A:Molecule type: mRNA
 A:Residues: 1-154 <KUR>
 A:Cross-references: EMBL:X07285; MID:g56203; PIDN:CAA30265.1; PID:g56204
 R:El-Hassani, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.
 Biochim. Biophys. Acta 1131, 314-316, 1992
 A:Title: PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA contra
 A:Reference number: S24309; MID:92329546
 A:Accession: S24309
 A:Status: preliminary; translation not shown
 A:Molecule type: mRNA
 A:Residues: 35-154 <ELH>
 A:Cross-references: EMBL:X61697; MID:g56143; PIDN:CAA43863.1; PID:g56144
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor
 F:1-9/Domain: signal sequence #status predicted <SIG>
 F:10-154/Product: basic fibroblast growth factor #status predicted <MNT>

Query Match 71.4%; Score 798.5; DB 2; Length 154;
 Best Local Similarity 96.8%; Pred. No. 1.4e-53;

Matches 150; Conservative 4; Mismatches 0; Indels 1; Gaps 1;

OY 56 MAAGSTTLPALPEDGSGAFPFGHFKDPKRLCYCKNGGFLRIHPGKRDGVREKSDPHY 115
 |||||
 Db 1 MAAGSTTLPALPEDG3-GAFPFGHFKDPKRLCYCKNGGFLRIHPGKRDGVREKSDPHY 59
 OY 116 KLOLAERGVSVIKGCANRYLAMKEDGRLASKCTDCFFPERLESNNYTRSRKY 175
 |||||
 Db 60 KLOLAERGVSVIKGCANRYLAMKEDGRLASKCTDCFFPERLESNNYTRSRKY 119
 OY 176 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
 :|||||
 Db 120 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 154

RESULT 5

C37360

basic fibroblast growth factor - mouse

C:Species: Mus musculus (house mouse)

C>Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999

C:Accession: C37360

R:Rebert, J.M.; Basillio, C.; Goldfarb, M.; Haub, O.; Martin, G.R.

Dev. Biol. 138, 454-463, 1990

A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization

A:Reference number: A37360; MID:90201563

A:Accession: C37360

A:Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-154 <HEB>

A:Cross-references: GB:M30644; MID:9193296; PIDN:AAA7621.1; PID:g309239

C:Superfamily: fibroblast growth factor

Query Match 70.1%; Score 783.5; DB 2; Length 154;
 Best Local Similarity 94.8%; Pred. No. 2e-52;

Matches 147; Conservative 5; Mismatches 2; Indels 1; Gaps 1;

OY 56 MAAGSTTLPALPEDGSGAFPFGHFKDPKRLCYCKNGGFLRIHPGKRDGVREKSDPHY 115
 |||||
 Db 1 MAAGSTTLPALPEDG3-GAFPFGHFKDPKRLCYCKNGGFLRIHPGKRDGVREKSDPHY 59

OY 116 KLOLAERGVSVIKGCANRYLAMKEDGRLASKCTDCFFPERLESNNYTRSRKY 175
 |||||
 Db 60 KLOLAERGVSVIKGCANRYLAMKEDGRLASKCTDCFFPERLESNNYTRSRKY 119
 OY 176 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
 :|||||
 Db 120 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 154

RESULT 6

S00185

basic fibroblast growth factor - sheep

N:Alternative names: prostatripin

C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)

C>Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999

C:Accession: S00185

R:Simpsom, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabril, L.J.; Nice, E.C.; Rubira, M.R.; B

FEBS Lett. 224, 128-132, 1987

A:Title: Primary structure of ovine pituitary basic fibroblast growth factor.

A:Reference number: S00185; MID:88055577

A:Accession: S00185

A:Molecule type: protein

A:Residues: 1-146 <SIM>

C:Superfamily: fibroblast growth factor

C:Keywords: growth factor; heparin binding; mitogen

F:18-22/Region: heparin binding #status predicted

F:107-110/Region: heparin binding #status predicted

Query Match 68.9%; Score 770; DB 1; Length 146;
 Best Local Similarity 97.9%; Pred. No. 2e-51;

Matches 143; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 65 PALPEDGSGAFPFGHFKDPKRLCYCKNGGFLRIHPGKRDGVREKSDPHIKLOLAER 124
 |||||
 Db 1 PALPEDGSGAFPFGHFKDPKRLCYCKNGGFLRIHPGKRDGVREKSDPHIKLOLAER 60
 OY 125 GVYISIGVCANRYLAMKEDGRLASKCTDCFFPERLESNNYTRSRKYTSWYALKR 184
 |||||
 Db 61 GVYISIGVCANRYLAMKEDGRLASKCTDCFFPERLESNNYTRSRKYTSWYALKR 120
 OY 185 TGOYKLGSKTGPQKAILFLPMSAKS 210
 :|||||
 Db 121 TGOYKLGSKTGPQKAILFLPMSAKS 146

RESULT 7

S31622

basic fibroblast growth factor - short-tailed opossum (Monodelphis domestica) (fragm

C:Species: Monodelphis domestica

C>Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 12-Apr-1995

C:Accession: S31622

R:Kusewilt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D.

submitted to the EMBL Data Library, September 1992

A:Description: Characterization of cDNA encoding basic fibroblast growth factor of t

A:Reference number: S31622

A:Accession: S31622

A:Status: preliminary

A:Molecule type: DNA

A:Residues: 1-164 <KUS>

A:Cross-references: EMBL:Z15154

C:Superfamily: fibroblast growth factor

Query Match 68.6%; Score 767.5; DB 2; Length 164;
 Best Local Similarity 89.2%; Pred. No. 3.4e-51;

Matches 149; Conservative 6; Mismatches 7; Indels 5; Gaps 2;

OY 45 AGSRRPAGCTMAAGSTTLPALPED-GSGAFPFGHFKDPKRLCYCKNGGFLRIHPDGR 103
 :|||
 Db 2 SSGSSVG---MAAGSTTLPALSCDGGGGAFFPGHFKDPKRLCYCKNGGFLRIHPDGR 57
 OY 104 VDVREKSDPHIKLOLAERGVSVIKGCANRYLAMKEDGRLASKCTDCFFPERLE 163

Db 58 VDGHEKSDPINKIQLQAEKGVVSIKVCANRLAMKEDRLALKTVEECFFERLE 117
 QY 164 SNNNTYRSRKYTSWYVALKRTGOKLSTGPGOKALFLPMAS 210
 Db 118 SNNNTYRSRKYTSWYVALKRTGOKLSTGPGOKALFLPMAS 164

RESULT 8

146711
 fibroblast growth factor - rabbit (fragment)
 C:Species: Oryctolagus cuniculus (domestic rabbit)
 C>Date: 14-Feb-1997 #sequence_revision 14-Feb-1997 #text_change 16-Jul-1999
 C:Accession: 146711
 R:Minkles, J.A.; Friesel, R.; Alberts, G.F.; Janat, M.F.; Liao, G.
 A:Title: Elevated expression of basic fibroblast growth factor in an immortalized rabbit
 A:Reference number: 146711; PMID:93343209
 A:Accession: 146711
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-137 <MIN>
 A:Cross-references: GB:J12034; NID:g165014; PIDN:AAA31248.1; PID:g165015
 C:Superfamily: fibroblast growth factor

Query Match 66.0%; Score 738; DB 2; Length 137;
 Best Local Similarity 99.3%; Pred. No. 4.8e-49;
 Matches 136; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 65 PALPEDGSGAFPPGHRERDRKLYCKNGGFFLRHPDGRVGVREKSDPHIKLQAEER 124
 Db 1 PALPEDGSGAFPPGHRERDRKLYCKNGGFFLRHPDGRVGVREKSDPHIKLQAEER 60
 QY 125 GVSIKGVCANRLAMKEDGRLASKVCYDCEFFERLESNNNTYRSRKYTSWYVALKR 184
 Db 61 GVSIKGVCANRLAMKEDGRLASKVCYDCEFFERLESNNNTYRSRKYTSWYVALKR 120
 QY 185 TGOYKLGSKTGPQOKAI 201
 Db 121 TGOYKLGSKTGPQOKAI 137

RESULT 9

4A0117
 basic fibroblast growth factor - African clawed frog
 C:Species: Xenopus laevis (African clawed frog)
 C>Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
 C:Accession: A40117; A29618
 R:Kimeiman, D.; Abraham, J.A.; Haaparanta, T.; Palisi, T.M.; Kirschner, M.W.
 A:Title: The presence of fibroblast growth factor in the frog egg: its role as a natural
 A:Reference number: A40117; PMID:89058621
 A:Accession: A40117
 A:Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 1-155 <MIN>
 A:Cross-references: GB:M18067; NID:g214177; PIDN:AAA49726.1; PID:g214178; GB:M21092
 R:Kimeiman, D.; Kirschner, M.
 A:Title: Synergistic induction of mesoderm by FGF and TGF-beta and the identification of
 A:Reference number: A29618; PMID:88052890
 A:Accession: A29618
 A:Molecule type: mRNA
 A:Residues: 95-110, 112-155 <MIN>
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor

Query Match 61.4%; Score 687; DB 1; Length 155;
 Best Local Similarity 83.9%; Pred. No. 3.9e-45;
 Matches 130; Conservative 9; Mismatches 16; Indels 0; Gaps 0;

QY 56 MAAGSTTLPALPEDGSGAFPPGHRERDRKLYCKNGGFFLRHPDGRVGVREKSDPHI 115
 Db 1 MAAGSTTLPALPEDGSGAFPPGHRERDRKLYCKNGGFFLRHPDGRVGVREKSDPHI 60
 QY 116 KLOLAVERGVVSIKVCANRLAMKEDGRLASKVCYDCEFFERLESNNNTYRSRKY 175
 Db 61 KLOLAVERGVVSIKVCANRLAMKEDGRLASKVCYDCEFFERLESNNNTYRSRKY 120
 QY 176 TSWYVALKRTGOKLSTGPGOKALFLPMAS 210
 Db 121 TSWYVALKRTGOKLSTGPGOKALFLPMAS 155

RESULT 10

A32484
 basic fibroblast growth factor precursor, 25K - guinea pig (fragments)
 C:Species: Cavia porcellus (guinea pig)
 C>Date: 20-Oct-1989 #sequence_revision 20-Oct-1989 #text_change 15-Jun-1996
 C:Accession: A32484
 R:Sommer, A.; Moscatelli, D.; Rifkin, D.B.
 A:Title: An amino-terminally extended and post-translationally modified form of a 21
 A:Reference number: A32484; PMID:89273588
 A:Accession: A32484
 A:Status: preliminary; nucleic acid sequence not shown; not compared with conceptua
 A:Molecule type: mRNA
 A:Residues: 1-125 <SOM>
 C:Superfamily: fibroblast growth factor

Query Match 47.5%; Score 531.5; DB 2; Length 125;
 Best Local Similarity 61.4%; Pred. No. 1.8e-33;
 Matches 113; Conservative 3; Mismatches 9; Indels 59; Gaps 4;

QY 27 VGRGRGRTAPRAPAARAGSRPPAGTMAAGSTTLPALPEDGSGAFPPGHRERDRK 86
 Db 1 VGRGRGRTAPRAPAARAGSRPPAGTMAAGSTTLPALPEDGSGAFPPGHRERDRK 50
 QY 87 LYCKNGGFFLRHPDGRVGVREKSDPHIKLQAEERGVVSIKVCANRLAMKEDGRL 146
 Db 51 LYCKNGGFFLRHPDGRVGVREKSDPHIKLQAEERGVVSIKVCANRLAMKEDGRL 65

QY 147 LASKCVTDECFERLESNNNTYRSRKYTSWYVALKRTGOKLSTGPGOKALFLPM 206
 Db 66 LASKCVTDECFERLESNNNTYRSRKYTSWYVALKRTGOKLSTGPGOKALFLPM 121
 QY 207 SAKS 210
 Db 122 SAKS 125

RESULT 11

A60721
 acidic fibroblast growth factor - golden hamster
 N:Alternate names: heparin-binding growth factor 1
 C:Species: Mesocricetus auratus (golden hamster)
 C>Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
 C:Accession: A60721
 R:Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.
 A:Title: Characterization of the hamster DDT-1 cell aFGF/HGF-I gene and cDNA and it
 A:Reference number: A60721; PMID:90270291
 A:Accession: A60721
 A:Status: not compared with conceptual translation
 A:Molecule type: DNA
 A:Residues: 1-155 <HAL>
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor; heparin binding

Query Match 37.4%; Score 418.5; DB 1; Length 155;
 Best Local Similarity 54.8%; Pred. No. 7.8e-25;
 Matches 86; Conservative 16; Mismatches 50; Indels 5; Gaps 2;


```
OY      56 MAASITLLPLPEDIGSSGAFPPGHFEDPKRYLCKNGKGGFFLRHDPGRDVGREKSDPHI 115
        | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      1 MAEGITTFSAITERFN--LPFGNKKRPLLCSNGHGRLRLIPGTGVDTGDRSDRI 57
OY      116 KLOIAEEBGSVSKGCANRYAMKEIDGLASKCTDECFEERLESNNNTYSRKX 175
        : | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      58 QLOLSAESAGEVIYIKGTETQOYLAMDTDGLLYSOYPNEECFLERLEENHYNTYSKRH 117
OY      176 T--SMYVALKRTGOYRKGSLTKGPCOKAIIIFLPMASAKS 210
        : : | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      118 AEKNMFPVLGIKKNSGCKRGPRTHYGQRKILFLPLPVSS 154
```

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RESULT      12
A60130
acidic fibroblast growth factor - chicken
N:Alternate names: endothelial cell growth factor
C:Species: Gallus gallus (chicken)
C:Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 16-Jul-1999
C:Accession: A60130; S02639
R:Schnuerch, H.; Risau, W.
Development 111, 1143-1154, 1991
A>Title: Differentiating and mature neurons express the acidic fibroblast growth factor
A:Reference number: A60130; MUID:91347925
A:Accession: A60130
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-155 <SCH>
A:Cross-references: GB:S63263; NID:g234372; PIDN:AAB19629.1; PTD:g234373
R:Risau, W.; Gautschi-Sova, P.; Boehlen, P.
EMBO J. 7, 959-962, 1988
A>Title: Endothelial cell growth factors in embryonic and adult chick brain are related
A:Reference number: S02639; MUID:88296438
A:Accession: S02639
A:Molecule type: Protein
A:Residues: 22-30,'X','X',32-44,'X',46-48 <RIS>
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor

Query Match          36.7%; Score 410.5; DB 2; Length 155;
Best Local Similarity 54.9%; Pred. No. 3.le-24;
Matches   84; Conservative 20; Mismatches 44; Indels    5; Gaps    2;

OY      56 MAAGSITLPLLPEDGGSGAPPPHFKDPKRLLNGGAFPIRHDPGVGDVGREKSDEPHI 115
       |||||..|.....|...:::|....|||...|||||...|...|||...|...|
DB      1 MAEGITTFALTIERFG---LPLGNKKPKKLILYCNSGHFLIPDGVGDGRDSDDHI 57
                                     :||| |::|::|:
OY     116 KIQLOAEERGVAIVSKGCANRLTAMKEKDRIILASKCVTDECFFERLESDNNNTYSRRKY 175
       ::|||::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|:
DB     58 QLOLSAEVDGEVIYIKSTASGOYLAMDITNGILLYGSQLPEECIFLERLDENHNYTIYSKH 117
       :||:|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|:
OY     176 T--SMYVALRKTPGVKKLSKTSPGOKALFLPM 206
       :|:|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|:
DB     118 ADKNMFVGIAKNGNSKSLGPRTHYGQALFLPL 150
       :|:|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|::|:

RESULT      13
acidic fibroblast growth factor 1 precursor [validated] - human
N:Alternate names: beta-BCEGF; endothelial cell growth factor beta; heparin-binding growm
C:Species: Homo sapiens (man)
C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 08-Dec-2000
C:Accession: A33665; A32316; S18217; A43804; A24662; J0707; S35535; S35536; I39413; A2; Abrah
R:Meysig, A.; Tischner, E.; Graves, D.; Tumolo, A.; Miller, J.; Gospodarowicz, D.; Abrah
Biochem Biophys Res Commun 164, 1121-1129, 1989
A>Title: Structural analysis of the gene for human acidic fibroblast growth factor.
A:Reference number: A33665; MUID:90073637
A:Accession: A33665
A:Molecule type: DNA
A:Residues: 1-155 <MER>
A:Cross-references: GB:M30491
```

R.Wang, W.P.; Lehtoma, K.; Varban, M.L.; Krishnan, I.; Chiu, I.M.
Mol. Cell. Biol. 9, 2387-2395, 1989
A>Title: Cloning of the gene coding for human class 1 heparin-binding growth factor
A:Reference number: A32316
A:Accession: A32316
A:Molecule type: DNA
A:Residues: 1-155 <MAN>
A:Cross-references: GB:M23087; NID:9183875; PIDN:AAA52638.1; PID:9386768
R.Wang, W.P.; Quick, D.; Balcerzak, S.P.; Needleman, S.W.; Chiu, I.M.
Oncogene 6, 1521-1529, 1991
A>Title: Cloning and sequence analysis of the human acidic fibroblast growth factor
A:Reference number: S18217; MUID:92019819
A:Accession: S18217
A:Molecule type: DNA
A:Residues: 1-155 <MA2>
A:Cross-references: EMBL:M23086
R.Chiu, I.M.; Wang, W.P.; Lehtoma, K.
Oncogene 5, 755-762, 1990
A>Title: Alternative splicing generates two forms of mRNA coding for human heparin-b
A:Reference number: A43804; MUID:90265618
A:Accession: A43804
A:Molecule type: mRNA
A:Residues: 1-155 <CH1>
A:Cross-references: EMBL:X51943; NID:932435; PIDN:CAA36206.1; PID:932436
R.Jaye, M.; Hawk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.; Ravera, M.W.; O'Brien, S
Science 233, 541-545, 1986
A>Title: Human endothelial cell growth factor: cloning, nucleotide sequence, and chr
A:Reference number: A24662; MUID:86261805
A:Accession: A24662
A:Molecule type: mRNA
A:Residues: 1-155 <CA7>
A:Cross-references: GB:M13361; NID:9181941; PIDN:AAA79245.1; PID:9181942
R.Yu, Y.L.; Kha, H.; Golden, J.A.; Mischelstein, A.A.J.; Goetzl, E.J.; Turk, C.W.
J. Exp. Med. 175, 1073-1080, 1992
A>Title: An acidic fibroblast growth factor protein generated by alternate splicing
A:Reference number: JH0707; MUID:92202857
A:Accession: JH0707
A:Molecule type: mRNA
A:Residues: 1-155 <YU>
A:Cross-references: GB:X65778; NID:9396163; PIDN:CAA6661.1; PID:9396164
R.Payson, R.A.; Canatani, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; C
Nucleic Acids Res. 21, 489-495, 1993
A>Title: Cloning of two novel forms of human acidic fibroblast growth factor (aGF)
A:Reference number: S35535; MUID:93181239
A:Accession: S35535
A>Status: translation not shown
A:Molecule type: mRNA
A:Residues: 1-58 <PA2>
A:Cross-references: GB:L01487
R.Crumley, G.; Dionne, C.A.; Jaye, M.
Biochem. Biophys. Res. Commun. 171, 7-13, 1990
A>Title: The gene for human acidic fibroblast growth factor encodes two upstream exc
A:Reference number: J39412; MUID:90365758
A:Accession: J39412
A>Status: translation not shown
A:Molecule type: mRNA
A:Residues: 1-40 <RES>
A:Cross-references: GB:M60515; NID:9178226; PIDN:AAA51672.1; PID:9553170; GB:M60516;
R.Harper, J.W.; Striydom, D.J.; Lobb, R.R.
Biochemistry 25, 4097-4103, 1986
A:Reference number: A23553; MUID:86296647
A:Accession: A23553
A:Molecule type: protein
A:Residues: 16-155 <HAR>
R.Gilmanez-Gallardo, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
Biochem. Biophys. Res. Commun. 138, 611-617, 1986
A>Title: The complete amino acid sequence of human brain-derived acidic fibroblast g
A:Reference number: A24820; MUID:86295741

A:Accession: A24820
 A:Molecule type: protein
 A:Residues: 16-155 <GIN>
 R:Glennuz-Gallejo, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
 Biochem. Biophys. Res. Commun. 135, 541-548, 1986
 A:Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal
 A:Reference number: A90122; MUID:86186784
 A:Accession: A24243
 A:Molecule type: protein
 A:Residues: 16-47 <G12>
 A:Experimental source: brain
 R:Gautschi, P.; Frazer-Schroder, M.; Bohlen, P.
 FEBS Lett. 204, 203-207, 1986
 A:Title: Partial molecular characterization of endothelial cell mitogens from human brain
 A:Reference number: A91364; MUID:86275260
 A:Accession: A24301
 A:Molecule type: protein
 A:Residues: 16-30, 'X', 33-49 <GAU>
 R:Gautschi-Sova, P.; Muller, T.; Bohlen, P.
 Biochem. Biophys. Res. Commun. 140, 874-880, 1986
 A:Title: Amino acid sequence of human acidic fibroblast growth factor.
 A:Reference number: A26386; MUID:87048871
 A:Accession: A26386
 A:Molecule type: protein
 A:Residues: 16-155 <GA2>
 A:Experimental source: brain
 R:Chavan, A.J.; Halsey, B.E.; Volkin, D.B.; Marfia, K.E.; Verticelli, A.M.; Bruner, M.W.
 Biochemistry 33, 7193-7202, 1994
 A:Title: Interaction of nucleotides with acidic fibroblast growth factor (FGF-1).
 A:Reference number: A53639; MUID:94271773
 A:Accession: A53639
 A:Molecule type: protein
 A:Residues: 16-30, 'X', 32-38; 73-75, 'X', 77-97, 'X', 99-101; 128-131, 'X', 133-140, 'X', 142-152
 C:Genetics:
 A:Gene: GDB:FGF1; FGFA
 A:Cross-references: GDB:119909; OMIM:131220
 A:Map position: 5q31.3-5q33.2
 A:Introns: 57/1: 91/3
 C:Superfamily: fibroblast growth factor
 C:Keywords: alternative splicing; growth factor; heparin binding
 E:16-155/Product: fibroblast growth factor 1 [status experimental <MAT>
 F:129/Binding site: carbohydrate (Asn) (covalent) [status absent

Query Match 36.6%; Score 409.5; DB 1; Length 155;
 Best Local Similarity 54.1%; Pred. No. 3.7e-24;
 Matches 85; Conservative 16; Mismatches 51; Indels 5; Gaps 2;

OY 56 MAAGSTTLPALPEDGSGAFPFGHFKDPRRLCYCKNGGFLRLHPDGRVDGVRKSDPHI 115
 DB 1 MAGEITTFALTEKEN--LPPGNKRPRLCYCKNGGFLRLHPDGRVDGVRKSDPHI 57

OY 116 KIQQAEEGCVSIRKVCANRYLAKMEDGRLASCVTDCFFERLESNNYTYRSRY 175
 DB 58 QIQLSAESAGEVYIKGTETGOYLAMDTGLYGSQTPNECELFLEENHNTYTSKHH 117

OY 176 T--SWYVALKRTGOYKISGTGPGOKAILFLPMSAKS 210
 DB 118 AEKNMFVGLKKNKSGCRKRPRTHYGOKAILFLPLPVSS 154

RESULT 14
 S04147
 acidic fibroblast growth factor 1 - rat
 N:Alternate names: heparin-binding growth factor 1
 C:Species: Rattus norvegicus (Norway rat)
 C:Date: 28-Feb-1990 #sequence_revision 28-Feb-1990 #text_change 16-Jul-1999
 R:Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.
 Nucleic Acids Res. 17, 2867, 1989
 A:Title: The nucleotide sequence of rat heparin binding growth factor 1 (HBGF-1).
 A:Reference number: S04147; MUID:89240051
 A:Accession: S04147

A:Molecule type: mRNA
 A:Residues: 1-155 <GOO>
 A:Cross-references: EMBL:X14232; NID:956351; PIDN:CAA32448.1; PID:956352
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor; heparin binding

Query Match 36.2%; Score 404.5; DB 2; Length 155;
 Best Local Similarity 53.5%; Pred. No. 8.9e-24;
 Matches 84; Conservative 17; Mismatches 51; Indels 5; Gaps 2;

OY 56 MAAGSTTLPALPEDGSGAFPFGHFKDPRRLCYCKNGGFLRLHPDGRVDGVRKSDPHI 115
 DB 1 MAGEITTFALTEKEN--LPPGNKRPRLCYCKNGGFLRLHPDGRVDGVRKSDPHI 57

OY 116 KIQQAEEGCVSIRKVCANRYLAKMEDGRLASCVTDCFFERLESNNYTYRSRY 175
 DB 58 QIQLSAESAGEVYIKGTETGOYLAMDTGLYGSQTPNECELFLEENHNTYTSKHH 117

OY 176 T--SWYVALKRTGOYKISGTGPGOKAILFLPMSAKS 210
 DB 118 AEKNMFVGLKKNKSGCRKRPRTHYGOKAILFLPLPVSS 154

RESULT 15
 D37360
 acidic fibroblast growth factor - mouse
 N:Alternate names: aFGF; FGF-1
 C:Species: Mus musculus (house mouse)
 C:Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
 C:Accession: D37360; J05231
 R:Hebert, J.M.; Basillio, C.; Goldfarb, M.; Haub, O.; Martlin, G.R.
 Dev. Biol. 138, 454-463, 1990
 A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterizati
 A:Reference number: A37360; MUID:90201563
 A:Accession: D37360
 A:Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 1-155 <HBB>
 A:Cross-references: GB:M30641; NID:q193284; PIDN:AAA37618.1; PID:q309236
 R:Madlal, P.; Hackshaw, K.V.; Chiu, I.M.
 Gene 179, 231-236, 1996
 A:Title: Cloning and characterization of the mouse Fgf-1 gene.
 A:Reference number: J05231; MUID:97128312
 A:Accession: J05231
 A:Status: preliminary
 A:Molecule type: DNA
 A:Residues: 1-155 <MAD>
 A:Cross-references: GB:U36456
 C:Comment: This protein is an inducer of neovascularization in angiogenic disease tr
 C:Genetics:
 A:Gene: Fgf-1
 A:Introns: 57/1: 91/3
 C:Superfamily: fibroblast growth factor

Query Match 36.2%; Score 404.5; DB 2; Length 155;
 Best Local Similarity 53.5%; Pred. No. 8.9e-24;
 Matches 84; Conservative 17; Mismatches 51; Indels 5; Gaps 2;

OY 56 MAAGSTTLPALPEDGSGAFPFGHFKDPRRLCYCKNGGFLRLHPDGRVDGVRKSDPHI 115
 DB 1 MAGEITTFALTEKEN--LPPGNKRPRLCYCKNGGFLRLHPDGRVDGVRKSDPHI 57

OY 116 KIQQAEEGCVSIRKVCANRYLAKMEDGRLASCVTDCFFERLESNNYTYRSRY 175
 DB 58 QIQLSAESAGEVYIKGTETGOYLAMDTGLYGSQTPNECELFLEENHNTYTSKHH 117

OY 176 T--SWYVALKRTGOYKISGTGPGOKAILFLPMSAKS 210
 DB 118 AEKNMFVGLKKNKSGCRKRPRTHYGOKAILFLPLPVSS 154

Search completed: June 2, 2002, 18:02:18
Job time: 496 sec

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OM protein - protein search, using sw model

Run on: June 2, 2002, 17:54:02 ; Search time 28.4 Seconds
(without alignments)
180.612 Million cell updates/sec

Title: US-09-642-277A-1
Perfect score: 1118
Sequence: 1 MGDRCGRALPGRLGGRGR.....GSKTGPQKALFLPMASAKS 210

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 231628 seqs, 24425594 residues

Total number of hits satisfying chosen parameters: 231628

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_AA:*
1: /cgn2_6/pdata/2/1aa/5A.COMB.pep:*
2: /cgn2_6/pdata/2/1aa/5B.COMB.pep:*
3: /cgn2_6/pdata/2/1aa/5A.COMB.pep:*
4: /cgn2_6/pdata/2/1aa/5B.COMB.pep:*
5: /cgn2_6/pdata/2/1aa/5A.COMB.pep:*
6: /cgn2_6/pdata/2/1aa/5B.COMB.pep:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1115	99.7	210	1	US-08-464-590A-14
2	1115	99.7	210	2	US-08-207-412B-9
3	1115	99.7	210	3	US-09-093-585-14
4	837	74.9	158	4	US-09-220-077C-2
5	835	74.7	235	1	US-08-078-683A-39
6	831	74.3	158	2	US-08-599-895-3
7	831	74.3	158	3	US-09-211-290-3
8	831	74.3	158	3	US-09-322-676-3
9	831	74.3	158	4	US-09-466-036A-3
10	830.5	74.3	432	1	US-07-959-369-8
11	830.5	74.3	432	2	US-08-836-854-20
12	827.5	74.0	432	1	US-07-959-369-9
13	826	73.9	155	1	US-07-959-369-6
14	826	73.9	155	1	US-07-842-177A-1
15	826	73.9	155	1	US-08-439-725A-10
16	826	73.9	155	1	US-08-325-632-1
17	826	73.9	155	1	US-08-462-169B-10
18	826	73.9	155	2	US-08-867-471-10
19	826	73.9	155	2	US-08-438-439C-14
20	826	73.9	155	2	US-08-951-822-28
21	826	73.9	155	3	US-09-103-079-10
22	826	73.9	155	3	US-08-705-245-6
23	826	73.9	155	3	US-08-897-924A-25
24	826	73.9	155	3	US-08-718-904-11
25	826	73.9	155	3	US-09-023-082A-17
26	826	73.9	155	3	US-09-030-613-3
27	826	73.9	155	4	US-09-098-628-2

28	826	73.9	155	4	US-09-451-905-3	Sequence 3, Appl1
29	826	73.9	155	4	US-09-368-951-28	Sequence 20, Appl1
30	826	73.9	155	5	PCT-US91-02186-2	Sequence 2, Appl1
31	826	73.9	155	6	5514566-8	Patent No. 5514566
32	823	73.6	155	1	US-07-959-369-7	Sequence 7, Appl1
33	821	73.4	154	2	US-08-438-439C-24	Sequence 24, Appl1
34	821	73.4	154	3	US-08-325-186-1	Sequence 1, Appl1
35	817	73.1	153	3	US-08-325-186-2	Sequence 2, Appl1
36	817	73.1	154	5	PCT-US91-02186-6	Sequence 6, Appl1
37	817	73.1	155	1	US-08-023-757-2	Sequence 2, Appl1
38	817	73.1	155	1	US-08-177-502-2	Sequence 8, Appl1
39	817	73.1	155	5	PCT-US91-02186-4	Sequence 4, Appl1
40	817	73.1	155	6	5514566-6	Patent No. 5514566
41	804	71.9	150	1	US-08-441-629-8	Sequence 8, Appl1
42	804	71.9	150	3	US-08-776-207-8	Sequence 8, Appl1
43	804	71.9	150	5	PCT-US95-09172-8	Sequence 8, Appl1
44	797	71.3	155	1	US-08-023-757-4	Sequence 4, Appl1
45	797	71.3	155	1	US-08-177-502-4	Sequence 4, Appl1

ALIGNMENTS

RESULT 1
US-08-464-590A-14
Sequence 14, Application US/08464590A
Patent No. 5763214
GENERAL INFORMATION:
APPLICANT: HU, JING-SHAN
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR-11
NUMBER OF SEQUENCES: 17
CORRESPONDENCE ADDRESS:
ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI,
STREET: 6 BECKER FARM ROAD
CITY: ROSELAND
STATE: NJ
COUNTRY: US
ZIP: 07068
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/464, 590A
FILING DATE: 05-JUN-1995
CLASSIFICATION: 536
ATTORNEY/AGENT INFORMATION:
NAME: MULLINS, J. G.
REGISTRATION NUMBER: 30, 073
REFERENCE/DOCKET NUMBER: 325600-438
TELECOMMUNICATION INFORMATION:
TELEPHONE: (201) 994-1700
TELEFAX: (201) 994-1744
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
LENGTH: 210 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-464-590A-14

Query Match 99.7% Score 1115: DB 1: Length 210:
Best local Similarity 99.5% Pred. No. 1.2e-92;
Matches 209; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDRCGRALPGRLGGRGRAPERYGGRGRGTAAAPAAAGSRPAGTAAGS 60
DB 1 LGDRGRALPGRLGGRGRAPERYGGRGRGTAAAPAAAGSRPAGTAAGS 60

0y	61	ITPALPEOGSGA	FFPGHKKDPKRL	RYCNGGFFLR	IHDGSRVDY	GREKSDSHILQIQ	120
Db	61	ITTPALPEOGSGA	FFPGHKKDPKRL	RYCNGGFFLR	IHDGSRVDY	GREKSDSHILQIQ	120
0y	121	AEEGVSIVSGVCN	RRLLAMKEDGRLLAS	CVYDCECFERLES	NNNTYRSRKYTSWY	180	
Db	121	AEEGVSIVSGVCN	RRLLAMKEDGRLLAS	CVYDCECFERLES	NNNTYRSRKYTSWY	180	
0y	181	ALKRTGQYKL	SGKTPGCKAILFL	PMNSAKS	210		
Db	181	ALKRTGQYKL	SGKTPGCKAILFL	PMNSAKS	210		

RESULT 2

US-08-207-412B-9
Sequence 9, Application US/08207412B
Patent No. 5817485
GENERAL INFORMATION:
APPLICANT: Hu, Jing-Shan
TITLE OF INVENTION: Fibroblast Growth Factor-10
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSEE: Carella, Byrne, Bain, Gilfillan, Cecchi
ADDRESSEE: Stewart & Olstein
STREET: 6 Becker Farm Road
CITY: Roseland
STATE: NJ
COUNTRY: USA
ZIP: 07068-1739
COMPUTER READABLE FORM:
MEDIUM TYPE: floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/207,412B
FILING DATE: 08-MAR-1994
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Ferraro, Gregory D
REGISTRATION NUMBER: 36,134
REFERENCE/DOCKET NUMBER: 325800-100
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201-994-1700
TELEFAX: 201-994-1744
INFORMATION FOR SEQ ID NO: 9:
SEQUENCE CHARACTERISTICS:
LENGTH: 210 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-207-412B-9

Query Match	99.78;	Score 1115;	DB 2;	Length 210;
Best Local Similarity	99.58;	Pred. No. 1.2e-92;		
Matches 209; Conservative	1;	Mismatches 0;	Indels 0;	Gaps 0

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0Y 1 MGRBRGALLPGGRGGGRERAPERVGRRRGNGTAPRAAPAARSRPCPACTMAGS 60
    1|||||
Db 1 LDRBRGALLPGGRGGGRERAPERVGRRRGNGTAPRAAPAARSRPCPACTMAGS 60
    1|||||
0Y 61 ITTLPALBEDGSGAFPFGHFKDPRRLTYCKNGGFFLR1HPDGRVDYREKSDPIIKQLQ 120
    |||||
Db 61 ITTLPALBEDGSGAFPFGHFKDPRRLTYCKNGGFFLR1HPDGRVDYREKSDPIIKQLQ 120
    |||||
0Y 121 AERGVVSIGVCANRYLAMEDEGLTLASLCVTECEFFELESNNNTYRSRYTSMY 180
    |||||
Db 121 AERGVVSIGVCANRYLAMEDEGLTLASLCVTECEFFELESNNNTYRSRYTSMY 180
    |||||
0Y 181 ALKRTGYKILSKSTGPGOKAILPLPMSAKS 210

```

Db 181 ALKRTGYKLGSKTGPQKAILFLPMSAKS 210

RESULT 3

```

US-09-093-585-14      US-09-093-585
? Sequence 14, Application US/09093585
? Patent No. 6110893
?
? GENERAL INFORMATION:
?
? APPLICANT:  HU, JIN-SHAN
? APPLICANT:  ROSEN, CRAIG A.
? TITLE OF INVENTION:  FIBROBLAST GROWTH FACTOR-11
? NUMBER OF SEQUENCES:  17
? CORRESPONDENCE ADDRESS:
? ADDRESSEE:  CABELLA, BYRNE, BAIN, GILFILLAN, CECCHI
? ADDRESS:  STUART & OLSTEIN
? STREET:  6 BECKER FARM ROAD
? CITY:  ROSELAND
? STATE:  NJ
? COUNTRY:  US
? ZIP:  07068
?
? COMPUTER READABLE FORM:
? MEDIUM TYPE:  floppy disk
? COMPUTER:  IBM PC compatible
? OPERATING SYSTEM:  PC-DOS/MS-DOS
? SOFTWARE:  patentin Release #1.0, Version #1.30
?
? CURRENT APPLICATION DATA:
? APPLICATION NUMBER:  US/09/093,585
?
? FILING DATE:
?
? CLASSIFICATION:
? PRIOR APPLICATION DATA:
? APPLICATION NUMBER:  US 08/464,590
? FILING DATE:  05-JUN-1995
? ATTORNEY/AGENT INFORMATION:
? NAME:  MULHINS, J. G.
? REGISTRATION NUMBER:  30,073
? REFERENCE/DOCKET NUMBER:  325800-438
? TELECOMMUNICATION INFORMATION:
? TELEPHONE:  (201) 994-1700
? TELEFAX:  (201) 994-1744
? INFORMATION FOR SEQ ID NO: 14:
? SEQUENCE CHARACTERISTICS:
? LENGTH: 210 amino acids
? TYPE: amino acid
? STRANDEDNESS: single
? TOPOLOGY: linear
? MOLECULE TYPE: protein
?
US-09-093-585-14

```

Query Match	99.7%	Score 115;	DB 3;	Length 210;
Best Local Similarity	99.5%	Pred. No. 1.2e-92;		
Matches 209; Conservative	1;	Mismatches 0;	Indels 0;	Gaps 0;

[illegible]

RESULT

RESULT 4
US-09-220-077C-2

Sequence 2, Application US/09220077C
Patent No. 6274712
GENERAL INFORMATION:
APPLICANT: Springer, Barry A.
APPLICANT: Pantoliano, Michael W.
APPLICANT: Sharp, Celia M.
TITLE OF INVENTION: Analogs of Human basic Fibroblast Growth Factor
FILE REFERENCE: 1503, 0220001
CURRENT APPLICATION NUMBER: US/09/220,077C
CURRENT FILING DATE: 1998-12-23
PRIOR APPLICATION NUMBER: US 60/068,667
PRIOR FILING DATE: 1997-12-23
NUMBER OF SEQ ID NOS: 4
SOFTWARE: PatentIn version 3.0
SEQ ID NO 2
LENGTH: 158
TYPE: PRT
ORGANISM: Homo sapiens
US-09-220-077C-2

Query Match 74.9%; Score 837; DB 4; Length 158;
Best Local Similarity 100.0%; Pred. No. 6.7e-68;
Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 54 GTMAAGSITTLPALPEDGSGAPPGHFKDPKRLCKNGGFFLRHPDGRVGVREKSDP 113
DB 2 GTMAAGSITTLPALPEDGSGAPPGHFKDPKRLCKNGGFFLRHPDGRVGVREKSDP 61
QY 114 HIKIQLAEEGVVSTIGVCANRYLAKMEDEGRLLASKCYTDECFEERLESNNYTRSR 173
DB 62 HIKIQLAEEGVVSTIGVCANRYLAKMEDEGRLLASKCYTDECFEERLESNNYTRSR 121
QY 174 KYTSMYVALKRTGQYKLGSKTGPGOKAILFLPMSAKS 210
DB 122 KYTSMYVALKRTGQYKLGSKTGPGOKAILFLPMSAKS 158

RESULT 5
US-08-078-683A-39
Sequence 3, Application US/08078683A
Patent No. 5486599
GENERAL INFORMATION:
APPLICANT: Saunders, Scott
APPLICANT: Bernfield, Merton
APPLICANT: Kato, Masato
TITLE OF INVENTION: Construction and Use of Synthetic
NUMBER OF SEQUENCES: 43
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street
CITY: Boston
STATE: MA
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: ASCII (text)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/078,683A
FILING DATE: 17-JUN-1993
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Vincent, Matthew P.
REGISTRATION NUMBER: 36,709
REFERENCE/DOCKET NUMBER: CME-062
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 39:

SEQUENCE CHARACTERISTICS:
LENGTH: 235 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
FRAGMENT TYPE: Internal
US-08-078-683A-39

Query Match 74.7%; Score 835; DB 1; Length 235;
Best Local Similarity 61.0%; Pred. No. 1.0e-67;
Matches 166; Conservative 2; Mismatches 19; Indels 18; Gaps 3;

QY 24 PERVGGRG-----RGRTAA-----PRAAPAA-----RGSRRGPAGTAAAGSITTLP 65
DB 31 PEDDGSDDSDNFSGSGTALPDTLSKRPSTWMDVWLLTATPAPEPTSAAGSITTLP 90
QY 66 ALPEDGSGAPPGHFKDPKRLCKNGGFFLRHPDGRVGVREKSDPHIKIQLAEEBG 125
DB 91 ALPEDGSGAPPGHFKDPKRLCKNGGFFLRHPDGRVGVREKSDPHIKIQLAEEBG 150
QY 126 VVSTIKGVCANRYLAKMEDEGRLLASKCYTDECFEERLESNNYTRSRKYSYVALKRT 185
DB 151 VVSTIKGVCANRYLAKMEDEGRLLASKCYTDECFEERLESNNYTRSRKYSYVALKRT 210
QY 186 GQYKLGSKTGPGOKAILFLPMSAKS 210
DB 211 GQYKLGSKTGPGOKAILFLPMSAKS 235

RESULT 6
US-08-599-895-3
Sequence 3, Application US/08599895
Patent No. 5891855
GENERAL INFORMATION:
APPLICANT: Florjanczyk, Robert Z.
TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
CITY: Seattle
STATE: Washington
COUNTRY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/599,895
FILING DATE: 31-JAN-1996
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: No. 5891855tenburg, Ph.D., Carol
REGISTRATION NUMBER: 39,317
REFERENCE/DOCKET NUMBER: 760100, 416
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 158 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-599-895-3

Query Match 74.3%; Score 831; DB 2; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.3e-67;
Matches 156; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 55 TMAAGSITLPLALPEDGSGGAPPGHFKDPKRLKCKNGFFLRHDPGRVGVREKSDPH 114
DB 3 TMAAGSITLPLALPEDGSGGAPPGHFKDPKRLKCKNGFFLRHDPGRVGVREKSDPH 62
QY 115 IKQLQAEERGVVSIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRK 174
DB 63 IKQLQAEERGVVSIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRK 122
QY 175 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 123 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 158

RESULT 7

US-09-211-290-3
; Sequence 3, Application US/09211290
; Patent No. 6071885
; GENERAL INFORMATION:
; APPLICANT: Floorkiewicz, Robert Z.
; TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
; NUMBER OF SEQUENCES: 13
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: SEED and BERRY LLP
; STREET: 6300 Columbia Center, 701 Fifth Avenue
; CITY: Seattle
; STATE: Washington
; COUNTRY: USA
; ZIP: 98104-7092
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/211,290
; FILING DATE: 12-DEC-1998
; CLASSIFICATION:
; ATTORNEY/AGENT INFORMATION:
; NAME: Makl, David J.
; REGISTRATION NUMBER: 31,392
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (206) 622-4900
; TELEFAX: (206) 682-6031
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 158 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-09-211-290-3

Query Match 74.3%; Score 831; DB 3; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.3e-67;
Matches 156; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 55 TMAAGSITLPLALPEDGSGGAPPGHFKDPKRLKCKNGFFLRHDPGRVGVREKSDPH 114
DB 3 TMAAGSITLPLALPEDGSGGAPPGHFKDPKRLKCKNGFFLRHDPGRVGVREKSDPH 62
QY 115 IKQLQAEERGVVSIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRK 174
DB 63 IKQLQAEERGVVSIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRK 122
QY 175 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 123 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 158

RESULT 8
US-09-322-676-3

; Sequence 3, Application US/09322676
; Patent No. 6107283
; GENERAL INFORMATION:
; APPLICANT: Floorkiewicz, Robert Z.
; TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
; NUMBER OF SEQUENCES: 13
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: SEED and BERRY LLP
; STREET: 6300 Columbia Center, 701 Fifth Avenue
; CITY: Seattle
; STATE: Washington
; COUNTRY: USA
; ZIP: 98104-7092
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/322,676
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 09/211,290
; FILING DATE: 12-DEC-1998
; ATTORNEY/AGENT INFORMATION:
; NAME: Makl, David J.
; REGISTRATION NUMBER: 31,392
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (206) 622-4900
; TELEFAX: (206) 682-6031
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 158 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-09-322-676-3

Query Match 74.3%; Score 831; DB 3; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.3e-67;
Matches 156; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 55 TMAAGSITLPLALPEDGSGGAPPGHFKDPKRLKCKNGFFLRHDPGRVGVREKSDPH 114
DB 3 TMAAGSITLPLALPEDGSGGAPPGHFKDPKRLKCKNGFFLRHDPGRVGVREKSDPH 62
QY 115 IKQLQAEERGVVSIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRK 174
DB 63 IKQLQAEERGVVSIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRK 122
QY 175 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 123 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 158

RESULT 9
US-09-466-036A-3
; Sequence 3, Application US/09466036A
; Patent No. 6281197
; GENERAL INFORMATION:
; APPLICANT: Floorkiewicz, Robert Z.
; TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
; NUMBER OF SEQUENCES: 13
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: SEED and BERRY LLP
; STREET: 6300 Columbia Center, 701 Fifth Avenue
; CITY: Seattle
; STATE: Washington
; COUNTRY: USA
; ZIP: 98104-7092

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/466,036A
FILING DATE: 17-Dec-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 09/211,290
FILING DATE: <Unknown>
ATTORNEY/AGENT INFORMATION:
NAME: Makl, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 200124,401D1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 158 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 3:
US-09-466-036A-3

Query Match 74.3%; Score 831; DB 4; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.3e-67;
Matches 156; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 55 TMAAGSTTLPALPEDGSGAFPPGHPFDPKRLCKNGGFLRLHPDGRVGVREKSPH 114
DB 3 TMAAGSTTLPALPEDGSGAFPPGHPFDPKRLCKNGGFLRLHPDGRVGVREKSPH 62
QY 115 IKIQLOAEERGVSIVKVCANRYLAMKEDGRLASKCVTDCFFPERLESNNYTYRSRK 174
DB 63 IKIQLOAEERGVSIVKVCANRYLAMKEDGRLASKCVTDCFFPERLESNNYTYRSRK 122
QY 175 YTSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 210
DB 123 YTSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 158

RESULT 10

US-07-959-369-8
Sequence 8, Application US/07959369
Patent No. 5302701
GENERAL INFORMATION:
APPLICANT: Hidetaka HASHI et al.
TITLE OF INVENTION: No. 5302701el Functional Polypeptide
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSER: Wenderoth, Lind & Ponack
STREET: 805 Fifteenth Street, N.W., #700
CITY: Washington
STATE: D.C.
COUNTRY: U.S.A.
ZIP: 20005
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 5.25 inch, 500 kb
COMPUTER: IBM compatible
OPERATING SYSTEM: MS-DOS
SOFTWARE: Wordperfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/959,369
FILING DATE: 19921013
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:

ATTORNEY/AGENT INFORMATION:

NAME: Warren M. Cheek, Jr.
REGISTRATION NUMBER: 33,367
REFERENCE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-371-8850
TELEFAX:

INFORMATION FOR SEQ ID NO: 8:

SEQUENCE CHARACTERISTICS:
LENGTH: 432 amino acids
TYPE: AMINO ACID
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: polypeptide
HYPOTHETICAL:
ANTI-SENSE:
FRAGMENT TYPE:
ORIGINAL SOURCE:
ORGANISM:

STRAIN:
INDIVIDUAL ISOLATE:
DEVELOPMENTAL STAGE:
HAPLOTYPE:
TISSUE TYPE:
CELL TYPE:
CELL LINE:
ORGANELLE:
IMMEDIATE SOURCE:
LIBRARY:
CLONE:
POSITION IN GENOME:
CHROMOSOME/SEGMENT:
MAP POSITION:
UNITS:
FEATURE:

NAME/KEY:
LOCATION:
IDENTIFICATION METHOD:
OTHER INFORMATION:
PUBLICATION INFORMATION:
AUTHORS:
TITLE:
JOURNAL:
VOLUME:
ISSUE:
PAGES:
DATE:
DOCUMENT NUMBER:
FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES IN SEQ ID NO:

US-07-959-369-8

Query Match 74.3%; Score 830.5; DB 1; Length 432;
Best Local Similarity 89.4%; Pred. No. 8.5e-67;
Matches 160; Conservative 4; Mismatches 14; Indels 1; Gaps 1;

QY 33 GGTAAAPRAAPARGSRPG-PAGTMAAGSTTLPALPEDGSGAFPPGHPFDPKRLCKN 91
DB 254 GGTGSPASAKRISTINYRTETIDKPSMAAGSTTLPALPEDGSGAFPPGHPFDPKRLCKN 313
QY 92 GGFELRIHPDGRVGVREKSPHILKIQLOAEERGVSIVKVCANRYLAMKEDGRLASKC 151
DB 314 GGFELRIHPDGRVGVREKSPHILKIQLOAEERGVSIVKVCANRYLAMKEDGRLASKC 373
QY 152 VTDCFFPERLESNNYTYRSRKTTSYVALKRTGYKLGSKTGPQKAILFLPMSAKS 210
DB 374 VTDCFFPERLESNNYTYRSRKTTSYVALKRTGYKLGSKTGPQKAILFLPMSAKS 432

RESULT 11

US-08-836-854-20
; Sequence 20, Application US/08836854
; Patent No. 5824547
; GENERAL INFORMATION:
; APPLICANT: HASHINO, Kimikazu
; APPLICANT: MATSUSHITA, Hideyuki
; APPLICANT: KATO, Kunoshin
; TITLE OF INVENTION: METHOD OF PRODUCTION OF TRANSFECTED CELLS
; NUMBER OF SEQUENCES: 21
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Browdy and Neimark
; STREET: 419 Seventh Street N.W. Ste. 300
; CITY: Washington
; STATE: D.C.
; COUNTRY: USA
; ZIP: 20004
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/836,854
; FILING DATE:
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: PCT/JP95/02425
; FILING DATE: 29-NOV-1995
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 317721/1994
; FILING DATE: 29-NOV-1994
; ATTORNEY/AGENT INFORMATION:
; NAME: Browdy, Roger L.
; REGISTRATION NUMBER: 25,618
; REFERENCE/DOCKET NUMBER: HASHINO-1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (202) 628-5197
; TELEFAX: (202) 737-3528
; INFORMATION FOR SEQ ID NO: 20:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 432 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-836-854-20

Query Match 74.3%; Score 830.5; DB 2; Length 432;
Best Local Similarity 89.4%; Pred. No. 8.5e-67;
Matches 160; Conservative 4; Mismatches 14; Indels 1; Gaps 1;

QY 33 GGTAAAPRAAPARGSRPG-PAGTMAAGSTTLPALPEDGSSGAPPPGHFDPRLCKN 91
||| : : : : :
DB 254 GGGSPASAKRISTINYTEIDKPSMAAGSTTLPALPEDGSSGAPPPGHFDPRLCKN 313
QY 92 GGFELRIHPDGRVGVREKSDPHIKILOAEERGVVSIKGCARRYLAMKEDGRLASKC 151
||||| : : : : :
DB 314 GGFELRIHPDGRVGVREKSDPHIKILOAEERGVVSIKGCARRYLAMKEDGRLASKC 373
QY 152 VTDECFEERLESNNYTIYSKRTSYVAIKRTGYKLGSKTGPGRKAILFLPMASKS 210
||||| : : : : :
DB 374 VTDECFEERLESNNYTIYSKRTSYVAIKRTGYKLGSKTGPGRKAILFLPMASKS 432

RESULT 12
US-07-959-369-9
; Sequence 9, Application US/07959369
; Patent No. 5302701
; GENERAL INFORMATION:
; APPLICANT: Hidetaka HASHI et al.
; TITLE OF INVENTION: NO. 5302701el Functional Polypeptide
; NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:
ADDRESSEE: Wenderoth, Lind & Ponack
STREET: 805 Fifteenth Street, N.W., #700
CITY: Washington
STATE: D.C.
COUNTRY: U.S.A.
ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette, 5.25 inch, 500 kb
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: MS-DOS
; SOFTWARE: Wordperfect 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/959,369
; FILING DATE: 19921013
; CLASSIFICATION: 530
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER:
; FILING DATE:
; ATTORNEY/AGENT INFORMATION:
; NAME: Warren M. Cheek, Jr.
; REGISTRATION NUMBER: 33,367
; REFERENCE/DOCKET NUMBER:
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 202-371-8850
; TELEFAX:
; TELEX:
; INFORMATION FOR SEQ ID NO: 9:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 432 amino acids
; TYPE: AMINO ACID
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: polypeptide
; HYPOTHETICAL:
; ANTI-SENSE:
; FRAGMENT TYPE:
; ORIGINAL SOURCE:
; ORGANISM:
; STRAIN:
; INDIVIDUAL ISOLATE:
; DEVELOPMENTAL STAGE:
; HAPLOTYPE:
; TISSUE TYPE:
; CELL TYPE:
; CELL LINE:
; ORGANELLER:
; IMMEDIATE SOURCE:
; LIBRARY:
; CLONE:
; POSITION IN GENOME:
; CHROMOSOME/SEGMENT:
; MAP POSITION:
; UNITS:
; FEATURE:
; NAME/KEY:
; LOCATION:
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; PUBLICATION INFORMATION:
; AUTHORS:
; TITLE:
; JOURNAL:
; VOLUME:
; ISSUE:
; PAGES:
; DATE:
; DOCUMENT NUMBER:
; FILING DATE:
; PUBLICATION DATE:
; RELEVANT RESIDUES IN SEQ ID NO:
; US-07-959-369-9

Query Match 74.0%; Score 827.5; DB 1; Length 432;
Best Local Similarity 88.8%; Pred. No. 1.6e-66;
Matches 159; Conservative 5; Mismatches 14; Indels 1; Gaps 1;

QY 33 GGTATAPAAPAAAGSRG-PAGTMAAGSITLPALEPGGSGAPPGHFKDKRLYCKN 91
DB 254 GGGDPSASSKPSINRTIDRPSMAAGSITLPALEPGGSGAPPGHFKDKRLYCKN 313
QY 92 GGFELIHDPGRVDGVRKSDPHIKQLQAEERGVSISGVCANRLAKEDGRLLASC 151
DB 314 GGFELIHDPGRVDGVRKSDPHIKQLQAEERGVSISGVCANRLAKEDGRLLASC 373
QY 152 VTDECFEFLRESNNNTYRSRKYTSWYALKRGTGKSGKTPGOKAILFLPMSAKS 210
DB 374 VTDECFEFLRESNNNTYRSRKYTSWYALKRGTGKSGKTPGOKAILFLPMSAKS 432

RESULT 13

US-07-959-369-6
Sequence 6, Application US/07959369
Patent No. 5302701

GENERAL INFORMATION:

APPLICANT: Hidetaka HASHI et al.
TITLE OF INVENTION: No. 5302701el Functional Polypeptide
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:

ADDRESSEE: Wenderoth, Lind & Ponack
STREET: 805 Fifteenth Street, N.W., #700
CITY: Washington
STATE: D.C.

COUNTRY: U.S.A.
ZIP: 20005

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 5.25 inch, 500 kb
COMPUTER: IBM Compatible
OPERATING SYSTEM: MS-DOS

SOFTWARE: Wordperfect 5.1
CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/959,369
FILING DATE: 19921013

CLASSIFICATION: 530
PRIOR APPLICATION DATA:

APPLICATION NUMBER:
FILING DATE:

ATTORNEY/AGENT INFORMATION:

NAME: Warren M. Cheek, Jr.
REGISTRATION NUMBER: 33,367
REFERENCE/DOCKET NUMBER:

TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-371-8850
TELEFAX:

TELEX:

INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:

LENGTH: 155 amino acids
TYPE: AMINO ACID

STRANDEDNESS: single
TOPOLOGY: linear

MOLECULE TYPE: polypeptide
HYPOTHETICAL:

ANTI-SENSE:
FRAGMENT TYPE:

ORIGINAL SOURCE:
ORGANISM:

STRAIN:
INDIVIDUAL ISOLATE:

DEVELOPMENTAL STAGE:
HAPLOTYPE:

TISSUE TYPE:
CELL TYPE:

CELL LINE:
ORGANELLE:

IMMEDIATE SOURCE:

LIBRARY:

CLONE:

POSITION IN GENOME:

CHROMOSOME/SEGMENT:

MAP POSITION:

UNITS:

FEATURE:

NAME/KEY:

IDENTIFICATION METHOD:

OTHER INFORMATION:

PUBLICATION INFORMATION:

AUTHORS:

TITLE:

JOURNAL:

VOLUME:

ISSUE:

PAGES:

DATE:

DOCUMENT NUMBER:

FILING DATE:

PUBLICATION DATE:

RELEVANT RESIDUES IN SEQ ID NO:

US-07-959-369-6

Query Match 73.9%; Score 826; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 6.3e-67;
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 56 MAGSITLPALEPGGSGAPPGHFKDKRLYCKNGFELIHDPGRVDGVRKSDPHI 115
DB 1 MAGSITLPALEPGGSGAPPGHFKDKRLYCKNGFELIHDPGRVDGVRKSDPHI 60
QY 116 KIQLQAEERGVSISGVCANRLAKEDGRLLASCYDCECFEFLRESNNNTYRSRY 175
DB 61 KIQLQAEERGVSISGVCANRLAKEDGRLLASCYDCECFEFLRESNNNTYRSRY 120
QY 176 TSMYVALKRTGYKLGSKTPGOKAILFLPMSAKS 210
DB 121 TSMYVALKRTGYKLGSKTPGOKAILFLPMSAKS 155

RESULT 14

US-07-842-177A-1
Sequence 1, Application US/07842177A
Patent No. 5348863

GENERAL INFORMATION:

APPLICANT: MONSIEUR, PIERRE
APPLICANT: PAUL, FRANCOIS

APPLICANT: BETBEDER, DIDIER
APPLICANT: SARMIENOTOS, PAOLO

TITLE OF INVENTION: PROCESS FOR THE ENZYMATIC PREPARATION OF
NUMBER OF SEQUENCES: 6

CORRESPONDENCE ADDRESS:
ADDRESSSEE: P.C.

STREET: 1755 Jefferson Davis Highway, Suite 400
CITY: Arlington

STATE: Virginia
COUNTRY: U.S.A.

ZIP: 22202

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/842,177A

FILING DATE: 19920402
CLASSIFICATION: 435

PRIOR APPLICATION DATA:
APPLICATION NUMBER: GB 9017008.5
FILING DATE: 02-AUG-1990
ATTORNEY/AGENT INFORMATION:
NAME: Oblon, No. 534863man F.
REGISTRATION NUMBER: 24,618
REFERENCE/DOCKET NUMBER: 769-263-0 PCT
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 521-4500
TELEFAX: (703) 486-2347
TELEX: 248855 OPAT UR
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 155 amino acids
TYPE: AMINO ACID
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-07-842-177A-1

Query Match 73.9%; Score 826; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 6.3e-67;
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 56 MAAGSITTLPALPEDGSGAPPFGHKDKRLKRCNGGFELRIHPDGRVDGVRKSDPHI 115
DB 1 MAAGSITTLPALPEDGSGAPPFGHKDKRLKRCNGGFELRIHPDGRVDGVRKSDPHI 60
QY 116 KIQLOAERGVSISIGVCANRYLAMKEDGRILASKCVTDECFEFLRLSSNNYNTYRSRY 175
DB 61 KIQLOAERGVSISIGVCANRYLAMKEDGRILASKCVTDECFEFLRLSSNNYNTYRSRY 120
QY 176 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 15
US-08-439-725A-10
Sequence 10, Application US/08439725A
Patent No. 5693775
GENERAL INFORMATION:
APPLICANT: Nathans, Jeremy
APPLICANT: Smallwood, Philip M.
APPLICANT: MacKe, Jennifer P.
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS
TITLE OF INVENTION: FACTOR-1 (PHF-1) AND METHODS OF USE
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 4225 Executive Square, Suite 1400
CITY: La Jolla
STATE: CA
COUNTRY: USA
ZIP: 92037
COMPUTER READABLE FORM:
MEDIUM TYPE: floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/439,725A
FILING DATE: 12-MAY-1995
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Halle, Lisa A.
REGISTRATION NUMBER: 38,347
REFERENCE/DOCKET NUMBER: 07265/047001
TELECOMMUNICATION INFORMATION:
TELEPHONE: 619/678-5070
TELEFAX: 617/678-5099
INFORMATION FOR SEQ ID NO: 10:

SEQUENCE CHARACTERISTICS:
LENGTH: 155 amino acids
TYPE: amino acid
STRANDEDNESS: not relevant
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-439-725A-10

Query Match 73.9%; Score 826; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 6.3e-67;
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 56 MAAGSITTLPALPEDGSGAPPFGHKDKRLKRCNGGFELRIHPDGRVDGVRKSDPHI 115
DB 1 MAAGSITTLPALPEDGSGAPPFGHKDKRLKRCNGGFELRIHPDGRVDGVRKSDPHI 60
QY 116 KIQLOAERGVSISIGVCANRYLAMKEDGRILASKCVTDECFEFLRLSSNNYNTYRSRY 175
DB 61 KIQLOAERGVSISIGVCANRYLAMKEDGRILASKCVTDECFEFLRLSSNNYNTYRSRY 120
QY 176 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

Search completed: June 2, 2002, 18:01:37
Job time: 455 sec

Sun Jun 2 18:28:47 2002

us-09-642-277a-1.rai

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 17:54:02 ; Search time 73.59 Seconds

(without alignments)
316.966 Million cell updates/sec

Title: US-09-642-277A-1

Perfect score: 1118

Sequence: 1 MSRRGRRAALPGRLGGRGR.....GSKTGEQKAILFLPMASAKS 210

Scoring table:

BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues

Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :

A: Geneseq_032802:*

- 1: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1980.DAT:*
- 2: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1981.DAT:*
- 3: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1982.DAT:*
- 4: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1983.DAT:*
- 5: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1984.DAT:*
- 6: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1985.DAT:*
- 7: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1986.DAT:*
- 8: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1987.DAT:*
- 9: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1988.DAT:*
- 10: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1989.DAT:*
- 11: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1990.DAT:*
- 12: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1991.DAT:*
- 13: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1992.DAT:*
- 14: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1993.DAT:*
- 15: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1994.DAT:*
- 16: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1995.DAT:*
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- 19: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1998.DAT:*
- 20: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA1999.DAT:*
- 21: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA2000.DAT:*
- 22: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA2001.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1118	100.0	210	22	AAB60695
2	1118	100.0	211	11	AA07076
3	1115	99.7	210	11	AA06685
4	1115	99.7	210	22	AAB50299
5	1115	99.7	210	22	AAB50706
6	837	74.9	157	8	AA071085
7	837	74.9	158	22	AA008594
8	837	74.9	158	22	AA078316
9	837	74.9	158	22	AA004006
10	835	74.7	235	16	AA07286
11	832	74.4	157	22	AA05081

12	832	74.4	157	22	AA004013
13	832	74.4	158	22	AA008601
14	832	74.4	158	22	AA008605
15	832	74.4	158	22	AA078320
16	832	74.4	158	22	AA078328
17	831	74.3	157	22	AA004008
18	831	74.3	158	18	AA031664
19	831	74.3	158	22	AA008596
20	831	74.3	158	22	AA078318
21	830.5	74.3	158	14	AA040160
22	830.5	74.3	158	18	AA033339
23	830.5	74.3	157	19	AA004057
24	830	74.2	157	22	AA004009
25	830	74.2	158	22	AA008597
26	830	74.2	158	22	AA078326
27	829	74.2	157	22	AA004010
28	829	74.2	158	22	AA008598
29	829	74.2	158	22	AA078319
30	828	74.1	157	22	AA065080
31	828	74.1	158	22	AA008604
32	828	74.1	158	22	AA078327
33	827.5	74.0	158	14	AA040162
34	826	73.9	155	8	AA070301
35	826	73.9	155	10	AA094038
36	826	73.9	155	11	AA05314
37	826	73.9	155	13	AA02232
38	826	73.9	155	14	AA040159
39	826	73.9	155	16	AA080777
40	826	73.9	155	16	AA070204
41	826	73.9	155	16	AA070823
42	826	73.9	155	18	AA03338
43	826	73.9	155	18	AA019595
44	826	73.9	155	19	AA05456
45	826	73.9	155	19	AA057712

ALIGNMENTS

RESULT 1

AAB60695 standard; protein; 210 AA.

AC AAB60695;

DT 22-MAY-2001 (first entry)

DE Human basic fibroblast growth factor (bFGF) 22.5 kd form, SEQ ID NO:1.

KW Human bFGF; basic fibroblast growth factor; 22.5 kd form;

KW central nervous system; CNS damage; brain damage; neural stimulant;

KW stem cell; conjoint administration; therapy; recovery;

KW ischaemia; hypoxia; trauma; neurodegenerative disorder;

KW infectious disease; cancer; autoimmune disease; metabolic disorder;

KW stroke; encephalomyelitis; Alzheimer's disease; Huntington's disease;

KW Parkinson's disease; Creutzfeldt-Jakob disease; multiple sclerosis;

KW amyotrophic lateral sclerosis.

OS Homo sapiens.

PN WO200112236-A2.

PD 22-FEB-2001.

PF 18-AUG-2000; 2000WO-US22843.

PR 18-AUG-1999; 99US-0149561.

PA (GENO) GEN HOSPITAL CORP.

PI Finklestein SP, Snyder EY;

DR WPI; 2001-211142/21.

XX Treating central nervous system damage and brain damage resulting from
PT stroke, involves administering cells or stem cells and a neural
PT stimulant

XX Claim 14; Fig 4; 56pp; English.

XX The invention relates to a method of treating an individual with
CC central nervous system (CNS) damage, particularly brain damage resulting
CC from stroke. The method involves the administration of a neural stimulant
CC such as a polypeptide growth factor and stem cells (e.g., neural stem
CC cells, hematopoietic stem cells, teratocarcinoma-derived cells or
CC embryonic stem cells) capable of giving rise to brain cells such as
CC neurons, oligodendroglia, astroglia or microglia. The conjoint
CC administration of the stem cells and the neural stimulant promotes
CC greater recovery from CNS damage than either treatment alone, and
CC provides a greater degree of recovery than is currently available with
CC other known treatment methods. From a study of the effectiveness of the
CC conjoint administration of foetal mouse neural stem cells with or
CC without basic fibroblast growth factor (bFGF) in a rat model of stroke,
CC it was found that the treatment's recovery-promoting effects are
CC probably produced through mechanisms other than the prevention of cell
CC death. The method is useful for treating injury to the brain and spinal
CC cord due to ischaemia, hypoxia, trauma, neurodegenerative disorders
CC infectious diseases, cancer, autoimmune disease and metabolic disorders.
CC Examples of such disorders include stroke, hypotension, arrested
CC breathing, cardiac arrest, brain tumours, brain injury,
CC encephalomyelitis, Alzheimer's disease, Huntington's disease, Parkinson's
CC disease, Creutzfeldt-Jakob disease, multiple sclerosis, and amyotrophic
CC lateral sclerosis. The present sequence represents a 22.5 kD (210
CC residue) form of human bFGF which is specifically claimed for use in the
CC method of the invention.

XX Sequence 210 AA:

Query Match 100.0%; Score 1118; DB 22; Length 210;
Best Local Similarity 100.0%; Pred. No. 4,4e-91;
Matches 210; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDGRGRALPGRLGGRGRAPERYGGRGRGTAPAAPAAARSGRPGACTMAAGS 60
DB 1 mgdgrgralpgrlggrgrapervgrgrgtapaaapaarsrpgpactmaags 60
QY 61 ITTLPALPEDGSGAPPPGHFKDKPKRLYCKNGGFELRIHPDGRVDGVREKSDPHIKLOQ 120
DB 61 ittlpalpedgsgafppghfkdkpkrlycknggfelfrlhpdgdrvdyvrexsdphiklq 120
QY 121 AEEGRVYSITGVCANRYLAKKEDGRLLASCVYDECFEERLESNNYNTYRSRKYTSWY 180
DB 121 aeeegrvysitgvcanrylakkedgrllaskcvldceffeerlesnnyntyrskytswy 180
QY 181 ALKRTGYKLGSKTGPGRKALIFLPMASAKS 210
DB 181 alkrtygkylgsktgpqkailflpmsaks 210

RESULT 2

ID AAR07076 standard; protein; 211 AA.

XX AAR07076;

XX 11-JAN-1991 (first entry)

XX Extended recombinant basic fibroblast growth factor.

XX Basic fibroblast growth factor; tissue regeneration; infarction.

XX FR2642086-A.

XX 27-JUL-1990.

PF 26-JAN-1989; 89FR-0000973.
XX 26-JAN-1989; 89FR-0000973.

XX (SNFI) SANOFI SA.

PI Caput D., Ferrara P, Kaghad M;

XX WPI: 1990-277408/37.

DR N-PSDB: AAQ05884.

PT New recombinant gene encoding basic fibroblast growth factor - in
PT new high mol. wt. form, useful e.g. for stimulating tissue
PT regenerating or treating infarction

XX Disclosure; fig 8; 43pp; French.

XX This basic fibroblast growth factor (bFGF), encoded by clone
CC 409.2, stimulates growth of mesodermal and neuroectodermal cells.
CC It is thus potentially useful e.g. for regenerating damaged tissues,
CC and for treating myocardial infarctions, Parkinson's disease and
CC Alzheimer's disease. It can be produced on a large scale using rec-
CC ombinant DNA methods without risk of contamination. See also AAQ05884.

XX Sequence 211 AA:

Query Match 100.0%; Score 1118; DB 11; Length 211;
Best Local Similarity 100.0%; Pred. No. 4,5e-91;
Matches 210; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDGRGRALPGRLGGRGRAPERYGGRGRGTAPAAPAAARSGRPGACTMAAGS 60
DB 1 mgdgrgralpgrlggrgrapervgrgrgtapaaapaarsrpgpactmaags 60
QY 61 ITTLPALPEDGSGAPPPGHFKDKPKRLYCKNGGFELRIHPDGRVDGVREKSDPHIKLOQ 120
DB 61 ittlpalpedgsgafppghfkdkpkrlycknggfelfrlhpdgdrvdyvrexsdphiklq 120
QY 121 AEEGRVYSITGVCANRYLAKKEDGRLLASCVYDECFEERLESNNYNTYRSRKYTSWY 180
DB 121 aeeegrvysitgvcanrylakkedgrllaskcvldceffeerlesnnyntyrskytswy 180
QY 181 ALKRTGYKLGSKTGPGRKALIFLPMASAKS 210
DB 181 alkrtygkylgsktgpqkailflpmsaks 210

RESULT 3

ID AAR06685 standard; protein; 210 AA.

XX AAR06685;

XX 11-JAN-1991 (first entry)

XX Recombinant basic fibroblast growth factor.

XX Basic fibroblast growth factor; tissue regeneration; infarction.

XX FR2642086-A.

XX 27-JUL-1990.

XX 26-JAN-1989; 89FR-0000973.

XX 26-JAN-1989; 89FR-0000973.

XX (SNFI) SANOFI SA.

PI Caput D., Ferrara P, Kaghad M;

XX WPI: 1990-277408/37.

DR N-PSDB: AA005883.
 XX New recombinant gene encoding basic fibroblast growth factor - in
 PT new high mol. wt. form, useful e.g. for stimulating tissue
 PT regenerating or treating infarction
 XX
 XX Disclosure; fig 3; 43pp; French.
 PS
 CC This basic fibroblast growth factor (bFGF), encoded by clone
 CC pUC-SK1, stimulates growth of mesodermal and neuroectodermal cells.
 CC It is thus potentially useful e.g. for regenerating damaged tissues,
 CC and for treating myocardial infarctions, Parkinsons disease and
 CC Alzheimers disease. It can be produced on a large scale using rec-
 CC ombinant DNA methods without risk of contamination. There are a
 CC further 3 potential initiation codons in the corresp. DNA sequence,
 CC allowing expression of larger forms of the protein. See also AA005884.
 CC
 XX Sequence 210 AA;
 SQ
 Query Match 99.7%; Score 1115; DB 11; Length 210;
 Best Local Similarity 99.5%; Pred. No. 8.2e-91;
 Matches 209; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
 QY 1 MGDRGRALPGRLGGRGRAPERYGGRGRGTAPAPAPANGSRPGPAGTMAAGS 60
 Db 1 Lgdrgralpgrrlggrgraperervgrgrgtapaparsrpgpagtmaags 60
 QY 61 ITTLPALPEDGSGAPPGPHKOPKRLYCKNGGFRLHPDGRVDGYREKSDPHIKQLQ 120
 Db 61 ITTLPALPEDGSGAPPGPHKOPKRLYCKNGGFRLHPDGRVDGYREKSDPHIKQLQ 120
 QY 121 AEEGVVSTIKVCANRYLAMKEDGRLLASRCYVDECFEERLESNNNTYRSRRTYSWY 180
 Db 121 aeegvvsikgvcanylamkedgrllaskcvdecffierlesnnyntyrstkswy 180
 QY 181 ALKRTGYKLGSKTGPQKALIFLPMASAKS 210
 Db 181 alkrtygkylgsktgpqkallflpmasaks 210
 RESULT 4
 AAB50299
 ID AAB50299 standard; Protein: 210 AA.
 XX
 AC AAB50299;
 XX
 DT 20-MAR-2001 (first entry)
 XX
 DE Human fibroblast growth factor 20 SEQ ID NO: 8.
 XX
 KM Human; fibroblast growth factor 11; FGF-11; cancer; autoimmune disorder;
 KM hyperproliferative disorder; cardiovascular disorder; angiogenesis;
 KM wound healing; neurological disease; infection.
 XX
 OS Homo sapiens.
 XX
 PN WO200071715-A1.
 XX
 PD 30-NOV-2000.
 XX
 PF 16-MAY-2000; 2000WO-US13331.
 XX
 PR 21-MAY-1999; 99US-0135524.
 XX
 PA (HUMA-) HUMAN GENOME SCI INC.
 XX
 PI Rosen CA, Alderson R, Melder R, Duan RD, Hu J;
 XX
 DR WPI: 2001-016408/02.
 XX
 PT Polynucleotide encoding human fibroblast growth factor 11, useful in
 the diagnosis, treatment and prevention of cancer, immune disorders,

PT cardiovascular disorders and neurological diseases -
 XX
 XX Disclosure; Page 241-242; 250pp; English.
 XX
 CC The present invention provides the protein and coding sequences for human
 CC fibroblast growth factor 11 (FGF-11). These sequences can be used in the
 CC diagnosis and treatment of infections, cancer, autoimmune disorders,
 CC hyperproliferative disorders, cardiovascular disorders and neurological
 CC diseases, to prevent angiogenesis and to aid wound healing.
 CC
 XX Sequence 210 AA;
 SQ
 Query Match 99.7%; Score 1115; DB 22; Length 210;
 Best Local Similarity 99.5%; Pred. No. 8.2e-91;
 Matches 209; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
 QY 1 MGDRGRALPGRLGGRGRAPERYGGRGRGTAPAPAPANGSRPGPAGTMAAGS 60
 Db 1 Lgdrgralpgrrlggrgraperervgrgrgtapaparsrpgpagtmaags 60
 QY 61 ITTLPALPEDGSGAPPGPHKOPKRLYCKNGGFRLHPDGRVDGYREKSDPHIKQLQ 120
 Db 61 ITTLPALPEDGSGAPPGPHKOPKRLYCKNGGFRLHPDGRVDGYREKSDPHIKQLQ 120
 QY 121 AEEGVVSTIKVCANRYLAMKEDGRLLASRCYVDECFEERLESNNNTYRSRRTYSWY 180
 Db 121 aeegvvsikgvcanylamkedgrllaskcvdecffierlesnnyntyrstkswy 180
 QY 181 ALKRTGYKLGSKTGPQKALIFLPMASAKS 210
 Db 181 alkrtygkylgsktgpqkallflpmasaks 210
 RESULT 5
 AAB50706
 ID AAB50706 standard; Protein: 210 AA.
 XX
 AC AAB50706;
 XX
 DT 20-MAR-2001 (first entry)
 XX
 DE Human fibroblast growth factor 2 SEQ ID NO: 4.
 XX
 KM Human; fibroblast growth factor 10; FGF-10; cancer; autoimmune disorder;
 KM hyperproliferative disorder; cardiovascular disorder; angiogenesis;
 KM wound healing; neurological disease; infection.
 XX
 OS Homo sapiens.
 XX
 PN WO200071152-A1.
 XX
 PD 30-NOV-2000.
 XX
 PF 18-MAY-2000; 2000WO-US13573.
 XX
 PR 21-MAY-1999; 99US-0135523.
 XX
 PA (HUMA-) HUMAN GENOME SCI INC.
 XX
 PI Rosen CA, Alderson R, Melder R, Duan DR, Hu J, Gocayne JD;
 XX
 DR WPI: 2001-016351/02.
 XX
 PT Polynucleotide encoding human fibroblast growth factor 10, useful in
 PT the diagnosis, treatment and prevention of cancer, immune disorders,
 PT cardiovascular disorders and neurological diseases -
 XX
 PS Disclosure; Page 263; 275pp; English.
 CC
 CC The present invention provides the protein and coding sequences for human
 CC fibroblast growth factor 10 (FGF-10). These sequences can be used in the
 CC diagnosis and treatment of infections, cancer, autoimmune disorders,

CC hyperproliferative disorders, cardiovascular disorders and neurological
 CC diseases, to prevent angiogenesis and to aid wound healing.
 XX
 SQ Sequence 210 AA:

Query Match 99.7%; Score 1115; DB 22; Length 210;
 Best Local Similarity 99.5%; Pred. No. 8.2e-91;
 Matches 209; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 MGRGRORALPGRLGRGRGRAPRERVGGRGRGRRAAPAAAKSRGPGTMAAGS 60
 DB 1 Igdrgyralpggrlgrgrgrapervgrgrgrlaapraaparsrpgagtaags 60
 OY 61 ITLPLPEDGSGGAPPGHFKDPKRLCKNGGFLRIHPDGRVDGVRKSDPHIKLOLQ 120
 DB 61 Ittlpalpedgsgsafppghfkdpkrlcknggflrlhpdgrvdgvrksdphiklq 120
 OY 121 AERGVVSTIKGVCANRYLAKMKEDGRLLASCVDECFPERLESNNYNTYRSRKYTSWYV 180
 DB 121 aeergvvsikgvcanrylamkedgrllaskcvdecefferlesnnynnyrsrkytswyv 180
 OY 181 ALKRTGQYKLGSKTGPGRKALFLPMSAKS 210
 DB 181 alkrtygylgsktgpqkallflpmsaks 210

RESULT 6

AA071085
 ID AAP71085 standard; protein; 157 AA.

AC AAP71085;

DT 03-APR-1991 (first entry)

DE Sequence of human placental angiogenic factor (AF).

KW Mitogenic peptide; chemotactic peptide; protease synthesis;

KW stimulator; plasminogen; collagen; wound healer.

OS Homo sapiens.

PH Key Location/Qualifiers

FT Misc-difference 20 /note="AA No. 206"

XX EP226181-A.

XX 24-JUN-1987.

XX 11-DEC-1986; 86EP-0117257.

XX 12-AUG-1986; 86US-0895829.

XX 17-DEC-1985; 85US-0809873.

XX 16-JUL-1986; 86US-0888554.

XX (SYNE-) SYNERGEN INC.

XX Moscatelli DA, Rifkin DB, Sommer A;

XX WPI; 1987-171528/25.

XX Angiogenic factor protein from human placental tissue - has

XX active site(s) with mitogenic or chemotactic activity or with

XX ability to stimulate protease synthesis.

XX Claim 7; Page 49; 53pp; English.

XX AF has mitogenic or chemotactic activity and stimulates protease

XX synthesis, partic. synthesis of plasminogen activator and

XX collagenase. AF can be used to increase the blood supply to an

XX organ. AF can stimulate healing of decubitus ulcers, wounds,

CC surgical incisions and burns.
 XX
 SQ Sequence 157 AA:

Query Match 74.9%; Score 837; DB 8; Length 157;
 Best Local Similarity 100.0%; Pred. No. 2.2e-66;
 Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITLPLPEDGSGGAPPGHFKDPKRLCKNGGFLRIHPDGRVDGVRKSDP 113
 DB 1 gtmaagsitlplpedgsgsafppghfkdpkrlcknggflrlhpdgrvdgvrksdp 60
 OY 114 HIKLOAERGVVSTIKGVCANRYLAKMKEDGRLLASCVDECFPERLESNNYNTYRSR 173
 DB 61 hklqlgaergvvsikgvcanrylamkedgrllaskcvdecefferlesnnynnyrsr 120
 OY 174 KYTSWYVALKRTGQYKLGSKTGPGRKALFLPMSAKS 210
 DB 121 kytswyvalkrtygylgsktgpqkallflpmsaks 157

RESULT 7

AA08594
 ID AA08594 standard; protein; 158 AA.

AC AA08594;

DT 03-JAN-2002 (first entry)

DE Human basic fibroblast growth factor.

KW Human; basic fibroblast growth factor; bFGF; vulnerrary; vasotropic;

KW antitumor; cerebroprotective; neuroprotective; cardiact; wound healing;

KW ischaemia; peripheral vascular disease; neural injury; gastric ulcer;

KW duodenal ulcer; heart disease.

OS Homo sapiens.

PN US2001020004-A1.

XX 06-SEP-2001.

XX 05-APR-2001; 2001US-0826210.

XX 23-DEC-1997; 97US-0068667.

XX 23-DEC-1998; 98US-0220077.

XX (THRE-) 3-DIMENSIONAL PHARM INC.

XX Springer BA, Pantollano MW, Sharp CM;

XX WPI; 2001-570186/64.

XX N-PSDB; AAS13425.

XX New mutelins or analogues of human basic fibroblast growth factor, useful

XX for healing a wound, or treating ischemia, peripheral vascular disease,

XX neural injury, gastric ulcer, duodenal ulcer or heart disease.

XX Example 1; Fig 1; 15pp; English.

XX The invention relates to a mutelin of human basic fibroblast growth factor

XX (bFGF) or its biologically active peptide, comprising the substitution of

XX a neutral and/or hydrophobic amino acid. The mutelin comprises the

XX substitution of a neutral and/or hydrophobic amino acid for one or more

XX Glutamate 89, Aspartate 101, or Leucine 137. The mutelins have

XX superagonist properties. The human basic fibroblast growth factor mutelin

XX is useful for healing a wound, or treating ischemia, peripheral vascular

XX disease, neural injury, gastric ulcer, duodenal ulcer or heart disease

XX by stimulating cell division and can be administered by gene therapy.

XX The present sequence represents bFGF.

XX Sequence 158 AA:

Query Match 74.9%; Score 837; DB 22; Length 158;
 Best Local Similarity 100.0%; Pred. No. 2,2e-66;
 Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 54 GTMAAGSTITTPALPEDGSGAPPGHFKDPKRLYCKNGGFELRIHPDGRVDYREKSDP 113
 |||||||
 Db 2 gumaagsitltlpalpedsqsaifppghkdpkrllycknggffilrhpqgrvdyreksdp 61
 QY 114 HIKQLQAEERGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSR 173
 |||||||
 Db 62 hiklqlqaeergvvsikgvcanrylamkedgrllaskcvtdceffterlesnnyntyr 121
 QY 174 KYTSMYVALKRTGQYKLGSKTGPCQKALFLPMPSAKS 210
 |||||||
 Db 122 kytswyvalkrtgqyklgsktgpqkallflpmmsaks 158

RESULT 8

AAg78316 standard; Protein: 158 AA.

AC AAG78316;

DT 04-DEC-2001 (first entry)

DE Human basic fibroblast Growth Factor.

XX Human basic fibroblast growth factor; bFGF; wound healing; ischaemia;
 KM vascular disease; gastric ulcer; duodenal ulcer; stroke; gene therapy;
 KM cancer; Parkinson's; Alzheimer's; cardiac disorder; cytostatic;
 KM vulnery; cerebroprotective; antiulcer; vasotropic; neuroprotective;
 cell division.

OS Homo sapiens.

XX Key Location/Qualifiers

FT Cleavage-site 1..2

FT /note- "The initiating methionine is processed by E coli,
 purified bFGF of the invention therefore lack this amino
 acid"

FT Protein 2..158

FT /label- bFGF

FT /note- "Basic fibroblast Growth Factor"

PN US6274712-B1.

PD 14-AUG-2001.

XX 23-DEC-1998; 98DS-0220077.

XX 23-DEC-1997; 97US-068667P.

XX (THRE-) 3-DIMENSIONAL PHARM INC.

PA Springer BA, Pantoliano MM, Sharp CM;

PI WPI; 2001-595418/67.

DR N-PSDB; AA164151.

XX Novel mutant human basic fibroblast growth factor useful for, e.g.,
 PT stimulating wound healing, treating ischaemia, peripheral vascular
 PT disease, gastric or duodenal ulcers, stroke and gene therapy.

XX Example 1; Fig 1; 16pp; English.

XX This sequence relates to the amino acid sequence of human basic
 CC fibroblast growth factor (bFGF). The specification describes the creation
 CC of bFGF mutants or biologically active peptides based on the fully
 CC defined amino acid sequence given. The proteins have cyostatic,
 CC vulnerary, cerebroprotective, antiulcer, vasotropic and neuroprotective
 CC activities. The mutants may act as bFGF analogues and bFGF super

CC agonists. The mutants are useful for stimulating cell division, wound
 CC healing, treating ischaemia, peripheral vascular disease, gastric or
 CC duodenal ulcers, stroke, Parkinson's and Alzheimer's diseases, cardiac
 CC disorders and neural injury. Additionally, they may be used in gene
 CC therapy to treat inherited diseases, cancer and acquired disorders.

XX Sequence 158 AA;

Query Match 74.9%; Score 837; DB 22; Length 158;
 Best Local Similarity 100.0%; Pred. No. 2,2e-66;
 Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 54 GTMAAGSTITTPALPEDGSGAPPGHFKDPKRLYCKNGGFELRIHPDGRVDYREKSDP 113
 |||||||
 Db 2 gumaagsitltlpalpedsqsaifppghkdpkrllycknggffilrhpqgrvdyreksdp 61
 QY 114 HIKQLQAEERGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSR 173
 |||||||
 Db 62 hiklqlqaeergvvsikgvcanrylamkedgrllaskcvtdceffterlesnnyntyr 121
 QY 174 KYTSMYVALKRTGQYKLGSKTGPCQKALFLPMPSAKS 210
 |||||||
 Db 122 kytswyvalkrtgqyklgsktgpqkallflpmmsaks 158

RESULT 9

AAU04006 standard; Protein: 158 AA.

AC AAU04006;

DT 27-SEP-2001 (first entry)

DE human fibroblast growth factor.

XX Human; basic fibroblast growth factor; FGF; site directed mutagenesis;
 KM wound healing; ischaemia; peripheral vascular disease; neural injury;
 KM gastric ulcer; duodenal ulcer; heart disease; tumour; stroke;
 gene therapy.

OS Homo sapiens.

XX Key Location/Qualifiers

FT MISC-difference 1

FT /note- "This amino acid is absent from the form of
 the protein expressed in E. coli and the mutlein residues
 are numbered from the Gly at position 2"

PN WO200146416-A1.

PD 28-JUN-2001.

XX 22-DEC-1999; 99WO-US30534.

XX 22-DEC-1999; 99WO-US30534.

XX (THRE-) 3-DIMENSIONAL PHARM INC.

PA Springer BA, Pantoliano MM, Sharp CM;

PI WPI; 2001-418062/44.

DR N-PSDB; AAS07325.

XX Novel mutlein of human fibroblast growth factor comprising substitution
 PT of a neutral and/or hydrophobic amino acid for amino acid residue
 PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
 PT wounds, ulcers

XX Example 1; Fig 1; 47pp; English.

XX The sequence is human basic fibroblast growth factor, hFGF. The cDNA
 CC encoding hFGF has been engineered to allow site directed mutagenesis of

CC hFGF in order to produce muteins of hFGF with substitutions of a neutral
 CC and/or hydrophobic amino acid for one or more of the following amino acid
 CC residues (numbered from the Gly at position 2 since the Met at position 1
 CC is removed when the proteins are expressed in *E. coli*): glutamate 89, or
 CC aspartate 101 or leucine 137. hFGF muteins are useful for healing wounds,
 CC stimulating cell division in vivo or in vitro, treating ischaemia,
 CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
 CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
 CC muteins are also useful for treating the above mentioned conditions by
 CC gene therapy techniques.

XX Sequence 158 AA:

Query Match 74.9%: Score 837; DB 22; Length 158;
 Best Local Similarity 100.0%; Pred. No. 2.2e-66;

Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITTPALPEDGSGAPPGHFKDPKRLCYCKNGGFELRIHPDGRVDGYREKSDP 113
 |||
 DB 2 gtmagstltlpalpedgsgaifppghfkdkrlycknggfflirhpdgrrvdgyreksdp 61
 OY 114 HIKIQLAEEERGVSIVKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSR 173
 |||
 DB 62 hikiqlgeergvsvikvcanylamkedgrllaskcvtdcefferlesnnyntyrstr 121
 OY 174 KYTSWYVALKRTGQYKLGSKTGPQKALIFLPMsAKS 210
 |||
 DB 122 kytswyvalkrtgqyklsktpqpkallflpmsaks 158

RESULT 10

AAR77286
 ID AAR77286 standard; Protein: 235 AA.

AC -AAR77286;

DT 12-SEP-1995 (first entry)

XX Murine syndecan-1/human bFGF chimaeric protein.

XX Cell surface; proteoglycan; syndecan; mouse; mammary; epithelial cell;
 KW ectodomain; NMUNG; glycosylation; heparan sulphate; chondroitin sulphate;
 KW chimaera; chimaeric molecule; effector molecule; receptor; drug;
 KW antibody; diagnostic agent; PCR; primer; amplification.

XX Synthetic.

XX Key Location/Qualifiers

FT Peptide 1..81

FT /note- "murine syndecan residues"

FT Peptide 82..235

FT /note- "N-terminus bFGF coding region"

XX MO9500633-A.

XX 05-JAN-1995.

XX 17-JUN-1994; 94MO-US06920.

XX 17-JUN-1993; 93US-0078683.

XX (CHIL-) CHILDRENS MEDICAL CENT.

XX (STPD) UNIV IELAND STANFORD JUNIOR.

XX Bernfield M, Kato M, Saunders S;

XX WPI: 1995-052071/07.

XX DNA and protein sequences for recombinant syndecan-derived
 PT proteoglycans - comprising a core protein having glycosylation
 PT sites for heparin sulphate glycosaminoglycan side chains.

PS Example 12; Page 69; 97pp; English.

XX The sequence of a chimaeric protein comprising residues 1-81 of the
 CC mouse syndecan-1 (AA081748) linked to the residues comprising the
 CC N-terminus of the human basis fibroblast growth factor (bFGF). The gene
 CC encoding the chimaera was constructed by a sequential PCR process using
 CC primers AA091321-4 to amplify portions of the desired fragments. This
 CC sequence is an example of a chimaeric molecule containing the functional
 CC domains, esp. the soluble extracellular or heparan binding site, of the
 CC syndecan molecules (see AAR66797-812) linked to biological effector
 CC molecules, cell surface receptors, drugs, antibodies, diagnostic agents
 CC or components of microorganisms.

XX Sequence 235 AA:

Query Match 74.7%: Score 835; DB 16; Length 235;
 Best Local Similarity 81.0%; Pred. No. 5.2e-66;

Matches 166; Conservative 2; Mismatches 19; Indels 18; Gaps 3;

OY 24 PERVGGRG-----RGNGTAA-----PRAAPAA-----RGRSPGAPGMAAGSITLP 65
 |||
 DB 31 pedqgsqdsdnfsgsgtgalptlrsqtpstkwvllatpapeptsaaqstltlp 90
 OY 66 ALPEDGSGAPPGHFKDPKRLCYCKNGGFELRIHPDGRVDGYREKSDPHIKIQLAEEERG 125
 |||
 DB 91 alpedgsgaifppghfkdkrlycknggfflirhpdgrrvdgyreksdpkiklqiaery 150
 OY 126 VVSIVKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRYTSWYVALKRT 185
 |||
 DB 151 vsvikvcanylamkedgrllaskcvtdcefferlesnnyntyrstrkysyvalkrt 210
 OY 186 GOYKLGSKTGPQKALIFLPMsAKS 210
 |||
 DB 211 gqyklsktpqpkallflpmsaks 235

RESULT 11

AAG65081
 ID AAG65081 standard; Protein: 157 AA.

AC AAG65081;

DT 27-SEP-2001 (first entry)

XX human fibroblast growth factor mutetin L137Y.

XX Human; fibroblast growth factor; FGF; site directed mutagenesis;

KW wound healing; ischaemia; peripheral vascular disease; neural injury;
 KW gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutetin;
 KW mutant; L137Y.

XX Homo sapiens.

XX Synthetic.

XX Key Location/Qualifiers

FT MISC-difference 137 /note- "Wild-type Leu substituted by Tyr"

XX MO200146416-A1.

XX 28-JUN-2001.

XX 22-DEC-1999; 99MO-US30534.

XX 22-DEC-1999; 99MO-US30534.

XX (THRE-) 3-DIMENSIONAL PHARM INC.

XX Springer BA, Pantollano MW, Sharp CM;

XX WPI: 2001-418062/44.

PT Novel mutein of human fibroblast growth factor comprising substitution
PT of a neutral and/or hydrophobic amino acid for amino acid residue
PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
PT wounds, ulcers

XX Claim 16; Page - : 47pp; English.

CC The sequence is human fibroblast growth factor, hFGF, mutein L137Y. The
CC mutein is produced from a cDNA encoding hFGF that has been engineered to
CC allow site directed mutagenesis of hFGF in order to produce muteins of
CC hFGF with substitutions of a neutral and/or hydrophobic amino acid for
CC one or more of the following amino acid residues (numbered from the Gly
CC at position 2 in the wild type hFGF since the Met at position 1
CC is removed when the proteins are expressed in E. coli): glutamate 89, or
CC aspartate 101 or leucine 137. hFGF muteins are useful for healing wounds,
CC stimulating cell division in vivo or in vitro, treating ischaemia,
CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
CC muteins are also useful for treating the above mentioned conditions by
CC gene therapy techniques.
CC Note: The present sequence is not shown in the specification but is
CC derived from the hFGF sequence shown in figure 1.

XX Sequence 157 AA:

Query Match 74.4%; Score 832; DB 22; Length 157;
Best Local Similarity 99.4%; Pred. No. 6e-66;

Matches 156; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGSGAPPGHFKDPKRLCYCKNGGFILRHDPGVGVREKSDP 113
DB 1 gtnaagsttlpalpedgsgaifppghfkdpkrlcycknggfilrhdpdgvdvreksdp 60
OY 114 HIKIQQAERGVSITKGVCANRYLAKMKEDGRLASKCVTDECFPERLESNNYNTYRSR 173
DB 61 hikiqqaerqvysitkvcanylamkedgrllaskcvtdccfperlesnnyntyr 120
OY 174 KYTSWVALKRTGQYKLGSKTGPGRKAILFLPSAKS 210
DB 121 kytswvalkrtgqkygsktgpgrkailflpsaks 157

RESULT 12

AAU04013
ID AAU04013 standard; Protein; 157 AA.

XX AC AAU04013;

XX DT 27-SEP-2001 (first entry)

DE human fibroblast growth factor mutein L137A.

KW Human; fibroblast growth factor; FGF; site directed mutagenesis;
KW wound healing; ischaemia; peripheral vascular disease; neural injury;
KW gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutein;
KW mutant; L137A.

OS Homo sapiens.
OS Synthetic.

XX FT Misc-difference 137 Location/Qualifiers

XX FT /note= "Wild-type Leu substituted by Ala"

XX PN W0200146416-A1.

PD 28-JUN-2001.

XX PF 22-DEC-1999; 99WO-US30534.

XX PR 22-DEC-1999; 99WO-US30534.

PA (THERE-) 3-DIMENSIONAL PHARM INC.

XX PI Springer BA, Pantoliano MW, Sharp CM;

XX DR WPI; 2001-418062/44.

PT Novel mutein of human fibroblast growth factor comprising substitution
PT of a neutral and/or hydrophobic amino acid for amino acid residue
PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
PT wounds, ulcers

XX Claim 11; Page - : 47pp; English.

CC The sequence is human fibroblast growth factor, hFGF, mutein L137A. The
CC mutein is produced from a cDNA encoding hFGF that has been engineered to
CC allow site directed mutagenesis of hFGF in order to produce muteins of
CC hFGF with substitutions of a neutral and/or hydrophobic amino acid for
CC one or more of the following amino acid residues (numbered from the Gly
CC at position 2 in the wild type hFGF since the Met at position 1
CC is removed when the proteins are expressed in E. coli): glutamate 89, or
CC aspartate 101 or leucine 137. hFGF muteins are useful for healing wounds,
CC stimulating cell division in vivo or in vitro, treating ischaemia,
CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
CC muteins are also useful for treating the above mentioned conditions by
CC gene therapy techniques.
CC Note: The present sequence is not shown in the specification but is
CC derived from the hFGF sequence shown in figure 1.

XX Sequence 157 AA:

Query Match 74.4%; Score 832; DB 22; Length 157;
Best Local Similarity 99.4%; Pred. No. 6e-66;

Matches 156; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGSGAPPGHFKDPKRLCYCKNGGFILRHDPGVGVREKSDP 113
DB 1 gtnaagsttlpalpedgsgaifppghfkdpkrlcycknggfilrhdpdgvdvreksdp 60
OY 114 HIKIQQAERGVSITKGVCANRYLAKMKEDGRLASKCVTDECFPERLESNNYNTYRSR 173
DB 61 hikiqqaerqvysitkvcanylamkedgrllaskcvtdccfperlesnnyntyr 120
OY 174 KYTSWVALKRTGQYKLGSKTGPGRKAILFLPSAKS 210
DB 121 kytswvalkrtgqkygsktgpgrkailflpsaks 157

RESULT 13

AAU08601
ID AAU08601 standard; Protein; 158 AA.

XX AC AAU08601;

XX DT 03-JAN-2002 (first entry)

DE Human basic fibroblast growth factor mutein L137A.

KW Human; basic fibroblast growth factor; bFGF; vunerary; vasotrophic;
KW antiulcer; cerebroprotective; neuroprotective; cardiact; wound healing;
KW ischaemia; peripheral vascular disease; neural injury; gastric ulcer;
KW duodenal ulcer; heart disease; mutant; mutein; L137A.

OS Homo sapiens.
OS Synthetic.

XX FT Misc-difference 138 Location/Qualifiers

XX FT /note= "Wild-type Leu substituted by Ala"

XX PN US2001020004-A1.

PD 06-SEP-2001.
 XX 05-APR-2001; 2001US-0826210.
 PF 23-DEC-1997; 97US-0068667.
 PR 23-DEC-1998; 98US-0220077.
 XX (THRE-) 3-DIMENSIONAL PHARM INC.
 PA Springer BA, Pantollano MW, Sharp CM;
 PI MPI; 2001-570186/64.
 DR
 XX
 XX
 PT New mutins or analogues of human basic fibroblast growth factor, useful
 PT for healing a wound, or treating ischemia, peripheral vascular disease,
 PT neural injury, gastric ulcer, duodenal ulcer or heart disease
 PS Claim 11; Page - : 15pp; English.
 XX
 CC The invention relates to a mutin of human basic fibroblast growth factor
 CC (bFGF) or its biologically active peptide, comprising the substitution of
 CC a neutral and/or hydrophobic amino acid. The mutin comprises the
 CC substitution of a neutral and/or hydrophobic amino acid for one or more
 CC Glutamate 89, Aspartate 101, or Leucine 137. The mutins have
 CC superagonist properties. The human basic fibroblast growth factor mutin
 CC is useful for healing a wound, or treating ischemia, peripheral vascular
 CC disease, neural injury, gastric ulcer, duodenal ulcer or heart disease
 CC by stimulating cell division and can be administered by gene therapy.
 CC The present sequence represents bFGF mutin L137A. The amino acid(s)
 CC mutated refer to the numbering after the N-terminal methionine has been
 CC processed off. The number in the feature table refers to the location in
 CC the unprocessed protein.
 CC Note: The present sequence does not appear in the specification but
 CC is derived from the bFGF sequence appearing as AA008594.
 CC
 SQ Sequence 158 AA:

Query Match 74.4%; Score 832; DB 22; Length 158;
 Best Local Similarity 99.4%; Pred. No. 6.1e-66;
 Matches 156; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 54 GTMAAGSTTLPALPEDGSGAFPPGHFDPKRLCKNGCFILRIHPDGRVDGVRKESDP 113
 DB 2 gtmagsttlpalpedgsgafppghfdpkrlckngcfilrhpdgdrvgrvksdp 61
 OY 114 HIKLQIAEERGVSIVKGCANRYLAMKEDGRILASKCYTDCFFPERLESNNYNTYRSR 173
 DB 62 hklqlgaeergvsvikgcanylamkedgrilaskcvtdeffierlesnnyntyr 121
 OY 174 KITSWVALKRTGQYKLSKTPGQKAILFLPMSAKS 210
 DB 122 kytswvalkrtgykygsktgpqkailflpmsaks 158

RESULT 14

AA008605
 ID AA008605 standard; Protein; 158 AA.

AC AA008605;

XX 03-JAN-2002 (first entry)

DE Human basic fibroblast growth factor mutin L137Y.

KW Human; basic fibroblast growth factor; bFGF; vulnary; vasotropic;
 KW antitumor; cerebroprotective; neuroprotective; cardiatic; wound healing;
 KW ischemia; peripheral vascular disease; neural injury; gastric ulcer;
 KW duodenal ulcer; heart disease; mutant; mutin; L137Y.

OS Homo sapiens.
 OS Synthetic.

XX

FH Key Location/Qualifiers
 FT Misc-difference 138 /note- "Wild-type Leu substituted by Tyr"
 FT
 XX US2001020004-A1.
 PN
 XX
 PD 06-SEP-2001.
 XX
 XX
 PE 05-APR-2001; 2001US-0826210.
 PR 23-DEC-1997; 97US-0068667.
 PR 23-DEC-1998; 98US-0220077.
 XX (THRE-) 3-DIMENSIONAL PHARM INC.
 PA Springer BA, Pantollano MW, Sharp CM;
 PI MPI; 2001-570186/64.
 DR
 XX
 XX
 PT New mutins or analogues of human basic fibroblast growth factor, useful
 PT for healing a wound, or treating ischemia, peripheral vascular disease,
 PT neural injury, gastric ulcer, duodenal ulcer or heart disease
 PS Claim 18; Page - : 15pp; English.
 XX
 CC The invention relates to a mutin of human basic fibroblast growth factor
 CC (bFGF) or its biologically active peptide, comprising the substitution of
 CC a neutral and/or hydrophobic amino acid. The mutin comprises the
 CC substitution of a neutral and/or hydrophobic amino acid for one or more
 CC Glutamate 89, Aspartate 101, or Leucine 137. The mutins have
 CC superagonist properties. The human basic fibroblast growth factor mutin
 CC is useful for healing a wound, or treating ischemia, peripheral vascular
 CC disease, neural injury, gastric ulcer, duodenal ulcer or heart disease
 CC by stimulating cell division and can be administered by gene therapy.
 CC The present sequence represents bFGF mutin L137Y. The amino acid(s)
 CC mutated refer to the numbering after the N-terminal methionine has been
 CC processed off. The number in the feature table refers to the location in
 CC the unprocessed protein.
 CC Note: The present sequence does not appear in the specification but
 CC is derived from the bFGF sequence appearing as AA008594.
 CC
 SQ Sequence 158 AA:

Query Match 74.4%; Score 832; DB 22; Length 158;
 Best Local Similarity 99.4%; Pred. No. 6.1e-66;
 Matches 156; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 54 GTMAAGSTTLPALPEDGSGAFPPGHFDPKRLCKNGCFILRIHPDGRVDGVRKESDP 113
 DB 2 gtmagsttlpalpedgsgafppghfdpkrlckngcfilrhpdgdrvgrvksdp 61
 OY 114 HIKLQIAEERGVSIVKGCANRYLAMKEDGRILASKCYTDCFFPERLESNNYNTYRSR 173
 DB 62 hklqlgaeergvsvikgcanylamkedgrilaskcvtdeffierlesnnyntyr 121
 OY 174 KITSWVALKRTGQYKLSKTPGQKAILFLPMSAKS 210
 DB 122 kytswvalkrtgykygsktgpqkailflpmsaks 158

RESULT 15

AA078320
 ID AA078320 standard; Protein; 158 AA.

AC AA078320;

DT 04-DEC-2001 (first entry)

DE Human basic fibroblast Growth Factor mutant (L137A).

KW Human basic fibroblast growth factor; bFGF; wound healing; ischemia;
 KW vascular disease; gastric ulcer; duodenal ulcer; stroke; gene therapy;

KW cancer; Parkinson's; Alzheimer's; cardiac disorder; cytostatic;
 KW vulnary; cerebroprotective; antilicer; vasotropic; neuroprotective;
 KW cell division; muten; mutant.
 OS Homo sapiens.
 OS Synthetic.

Key Location/Qualifiers
 FT Cleavage-site 1..2

FT /note="The initiating methionine is processed by E coli,
 FT purified bpgf of the invention therefore lack this amino
 FT acid"

FT Misc-difference 138
 FT /note="Wild type Leu replaced by Ala"

US6274712-B1.

14-AUG-2001.

23-DEC-1998; 98US-0220077.

23-DEC-1997; 97US-068667P.

(THRE-) 3-DIMENSIONAL PHARM INC.

Springer BA, Pantoliano MW, Sharp CW;

WPI; 2001-595418/67.

Novel mutant human basic fibroblast growth factor useful for, e.g.,
 stimulating wound healing, treating ischemia, peripheral vascular
 disease, gastric or duodenal ulcers, stroke and gene therapy.

Claim 4; Page -; 16pp; English.

This sequence relates to a mutant protein created using human basic
 fibroblast growth factor (bFGF) (AA678316) with Leu138 substituted with
 an alanine. The specification describes the creation of bFGF muteins or
 biologically active peptides based on the fully defined amino acid
 sequence given. The proteins have cytostatic, vulnary,
 cerebroprotective, antilicer, vasotropic and neuroprotective activities.
 The muteins may act as bFGF analogues and bFGF super agonists. The
 muteins are useful for stimulating cell division, wound healing,
 treating ischemia, peripheral vascular disease, gastric or duodenal
 ulcers, stroke, Parkinson's and Alzheimer's diseases, cardiac disorders
 and neural injury. Additionally, they may be used in gene therapy to
 treat inherited diseases, cancer and acquired disorders.
 NOTE: The present sequence is not given in the specification but has
 been created using the information given in Claim 4.

Sequence 158 AA;

Query Match 74.4%; Score 832; DB 22; Length 158;

Best Local Similarity 99.4%; Pred. No. 6.1e-66;

Matches 156; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 54 GTMAGSITTLPALPDGSGAFPGHFPKPRRYCKNGCFRLRIHPDGRVGVREKSDP 113
 DB 2 gtnaagstltlpalpedgsgafppghfkprlyckngfflrilhpddgrvdrvreksdp 61
 OY 114 HIKLOLQAEERGVSVIKGCANRYLAMKEDGRILASKCVTDECFEERLESNNYNTYRSR 173
 DB 62 hikiqlgaeergrvsvikgcanyrlamkedgrilaskcvtdcefferlesnnyntyr 121
 OY 174 KTSMTVALKRTGQTKLGSKTGPGOKAILFLPMSAKS 210
 DB 122 ktsmtyvalkrtgqtklgsktgpgokailflpmsaks 158

